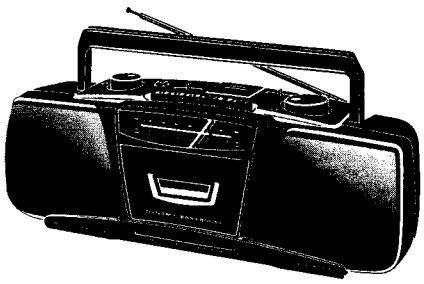
Stereo Radio Cassette Recorder AQ5310/00

AQ5315/17
AQ5210/00
AQ5215/17

Service
Service
Service

For service information of cassette transport
see : RR-2 (for AQ5310/AQ5315) 4324
RN-3 (for AQ5210/AQ5215) 4339



Service Manual

TABLE OF CONTENTS PAGE

Connection and controls	1
Specifications	2
Schematic diagram – tuner	3
Schematic diagram – audio/tape	4
Aligment procedure	5
Component layout	6
Schematic diagram – equailzer	7
Component layout – equailzer	8
Exploded view diagram	9
Electrical partslist	10

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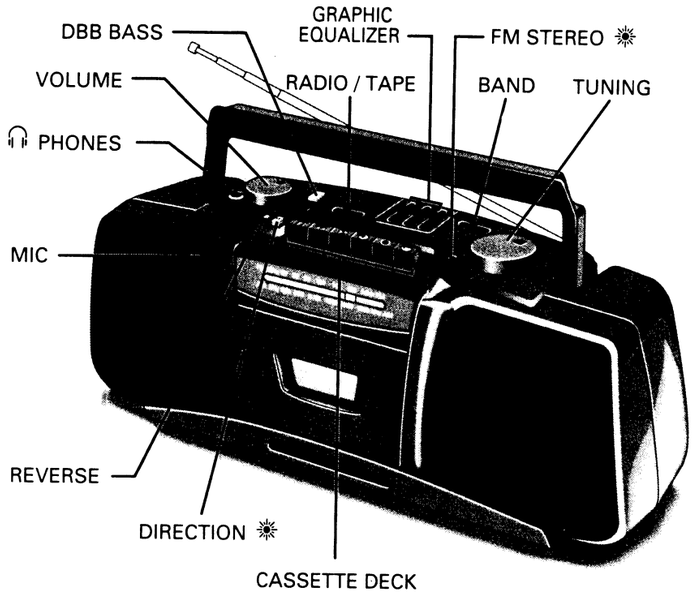
PHILIPS

CONNECTION AND CONTROLS



GB **WARNING**

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD).
Careless handling during repair can reduce life drastically.
When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance.
Keep components and tools also at this potential.

F **ATTENTION**

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD).
Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise à leur manipulation.
Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfiler le bracelet serti d'une résistance de sécurité.
Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.

ESD

D **WARNUNG**

Alle ICs und viele andere Halbleiter sind empfindlich gegenüber elektrostatischen Entladungen (ESD).
Unsorgfältige Behandlung im Reparaturfall kan die Lebensdauer drastisch reduzieren.
Veranlassen Sie, dass Sie im Reparaturfall über ein Pulsarmband mit Widerstand verbunden sind mit dem gleichen Potential wie die Masse des Gerätes.
Bauteile und Hilfsmittel auch auf dieses gleiche Potential halten.

NL **WAARSCHUWING**

Alle IC's en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD).
Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen.
Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.
Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

I **AVVERTIMENTO**

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).
La loro longevità potrebbe essere fortemente ridatta in caso di non osservazione della più grande cauzione alla loro manipolazione.
Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza.
Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

SPECIFICATION

GENERAL

Mains voltage	:	220V for -/00 120V for -/17
Mains frequency	:	50Hz / 60Hz
Battery	:	9V (R20 x 6)
Power consumption	:	20W max.
Dimensions (WxHxD)	:	509 x 218 x 203 (mm)
Weight	:	2.4 Kgs

AUDIO/CASSETTE

Output power (d=10%)	Mains :	2 x 2.0W
	Battery :	2 x 2.2W
Speaker impedance	:	2 x 3.2ohm
Tape speed	:	4.76cm/s ±2%
Wow and flutter	:	< 0.5 % (WTD DIN)
Fast-wind time C60	:	< 130 sec
Frequency response	:	250 - 6300Hz
S/N ratio	:	> 30dB

TUNER : FM section

Tuning range	:	87.5MHz - 108MHz
IF frequency	:	10.7MHz
Sensitivity	:	< 16µV 26dB S/N
Selectivity	:	> 20dB at 600KHz Bandwidth
IF rejection	:	> 50dB
Image rejection	:	> 20dB

TUNER : AM section

Tuning range	:	520KHz - 1607KHz (for -/00) 530KHz - 1710KHz (for -/17)
IF frequency	:	468KHz
Sensitivity	:	< 3500µV/M 26dB S/N
IF rejection	:	> 24dB
Image rejection	:	> 28db

GB

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.

NL

Veiligheidsbepalingen vereisen, dat het apparaat in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde, worden toegepast.

D

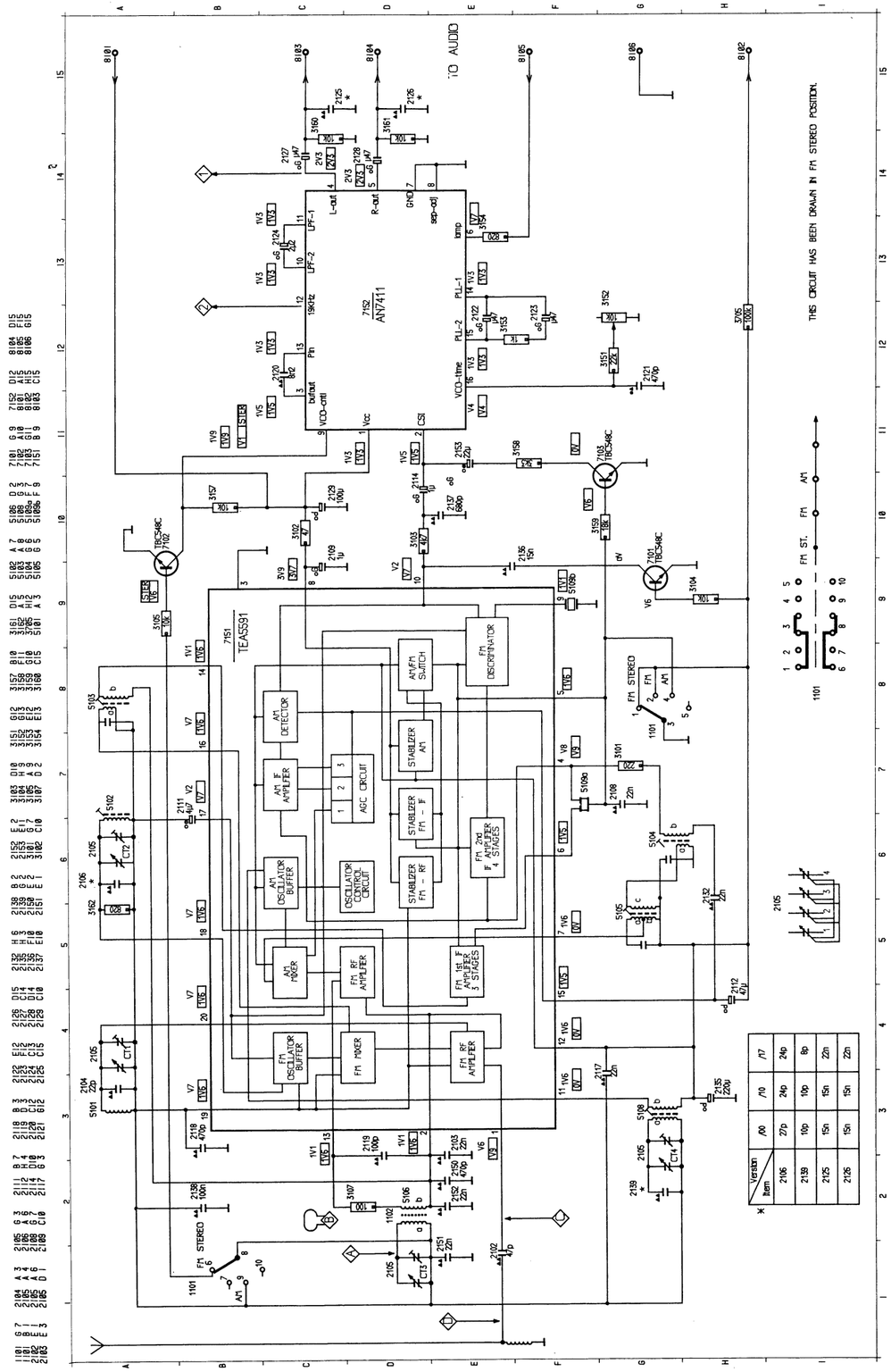
Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Originalzustand des Geräts darf nicht verändert werden; für Reparaturen sind Original-Ersatzteile zu verwenden.

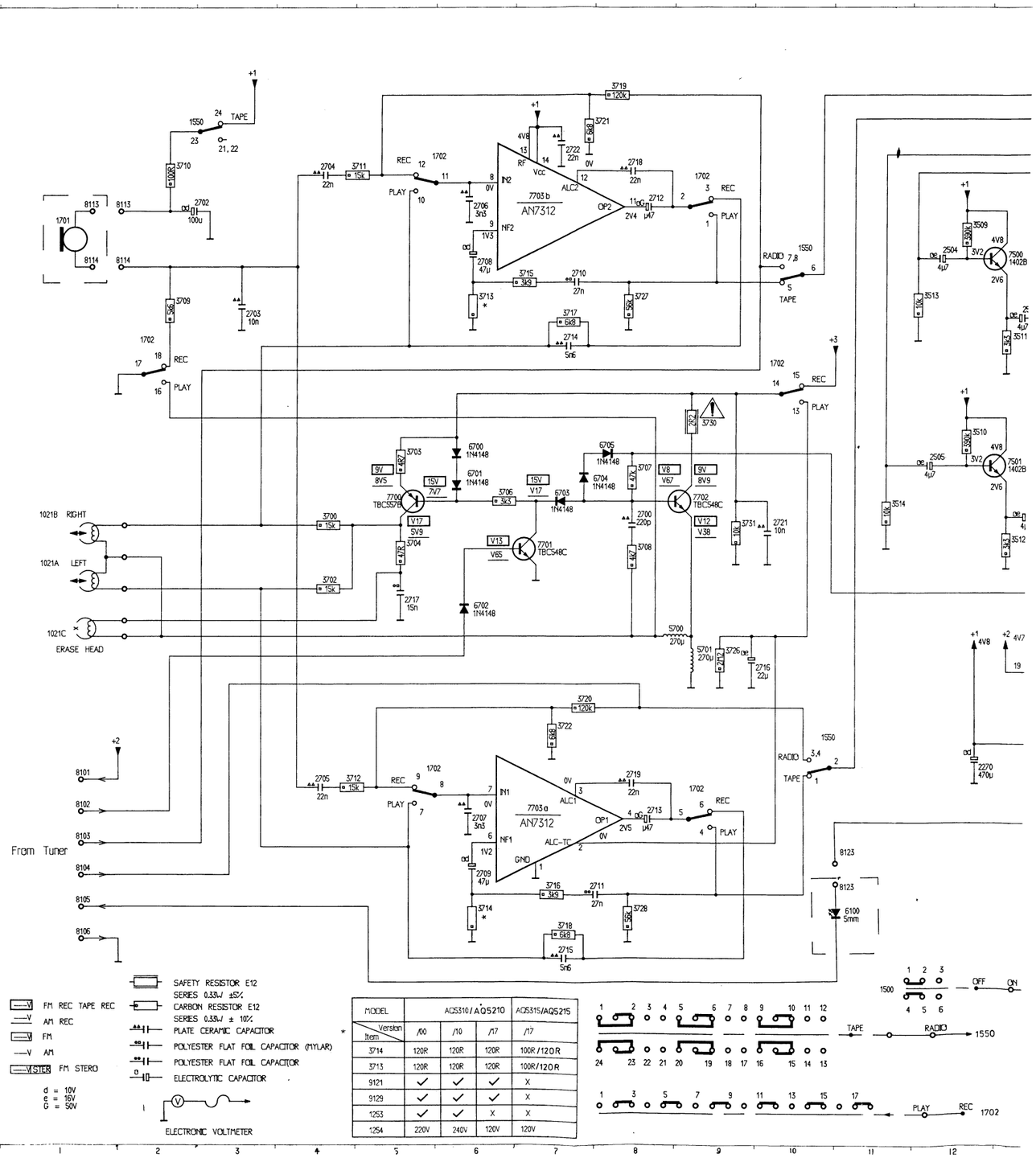
I

Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati i pezzi di ricambiago identici a quelli specificati.

F

Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.


TO AUDIO
THIS CIRCUIT HAS BEEN DRAWN IN FM STEREO POSITION.
7152 AN7411
7151 TEA5591
FM STEREO
AM/FM SWITCH
FM DISCRIMINATOR
AM DETECTOR
AM IF AMPLIFIER
AGC CIRCUIT
STABILIZER AM
STABILIZER FM1 – IF
STABILIZER FM1 – RF
FM 2nd AMPLIFIER IF 4 STAGES
AM OSCILLATOR BUFFER
OSCILLATOR CONTROL CIRCUIT
AM MIXER
FM1 IST IF AMPLIFIER 3 STAGES
FM1 OSCILLATOR BUFFER
FM1 MIXER
FM1 RF AMPLIFIER
AM
FM1
FM1 ST.
FM STEREO
1101
/17 24p 8p 22n 22n
/10 24p 10p 15n 15n
/00 27p 10p 15n 15n
Version / Item 2106 2139 2125 2126
* 2125 2126


7703 b AN7312
7703 a AN7312
TAPE
RADIO
REC
PLAY
1021B RIGHT
1021A LEFT
1021C ERASE HEAD
From Tuner
6100 5mm
SAFETY RESISTOR E12
SERIES 0.33W ±5%
CARBON RESISTOR E12
SERIES 0.33W ± 10%
PLATE CERAMIC CAPACITOR
POLYESTER FLAT FOIL CAPACITOR (MYLAR)
POLYESTER FLAT FOIL CAPACITOR
ELECTROLYTIC CAPACITOR
ELECTRONIC VOLTMETER
FM REC TAPE REC
AM REC
FM
AM
FM STEREO
d = 10V
c = 16V
C = 50V
MODEL
Version / Item
/00
/10
/17
3714
3713
9121
9129
1253
1254
AQ5310/AQ5210
AQ5315/AQ5215
120R
100R/120R
220V
240V
120V
OFF
ON

| | | |

RADIO ALIGNMENT

SK....	FREQUENCY	I/P	VARICON	ADJUST	O/P	SCOPE/METER
AM IF						
MW	468 KHz	A	Min.	5104 5105	1	↕ Max.
AM RF						
MW *	512 KHz 1635 KHz (1710 KHz)	B	Max. Min.	5108 CT4	1	↕ Max.
	550 KHz 1500 KHz		550 KHz 1500 KHz	5106 CT3		↕ Max.
FM IF						
FM	10.7 MHz via 10nF	C	Min.	5103	1	↕ Symmetrical
FM RF						
FM #	87.35 MHz 108.25 MHz	D	Max. Min.	5102 CT2	1	↕ Max.
	88 MHz 106 MHz		88 MHz 106 MHz	5101 CT1		↕ Max.
STEREO DECODER						
FM STEREO	98 MHz	D	98 MHz	3152	2	19 ± 0.2 KHz

* Mod. 1 KHz 30%
\# via 10nF + 15E
( ) for -/17 version

"Bei notwendigem Abgleich ist das Gerät auf die gesetzlich vorgeschriebenen Eckfrequenzen abzugleichen".

↕ Repeat

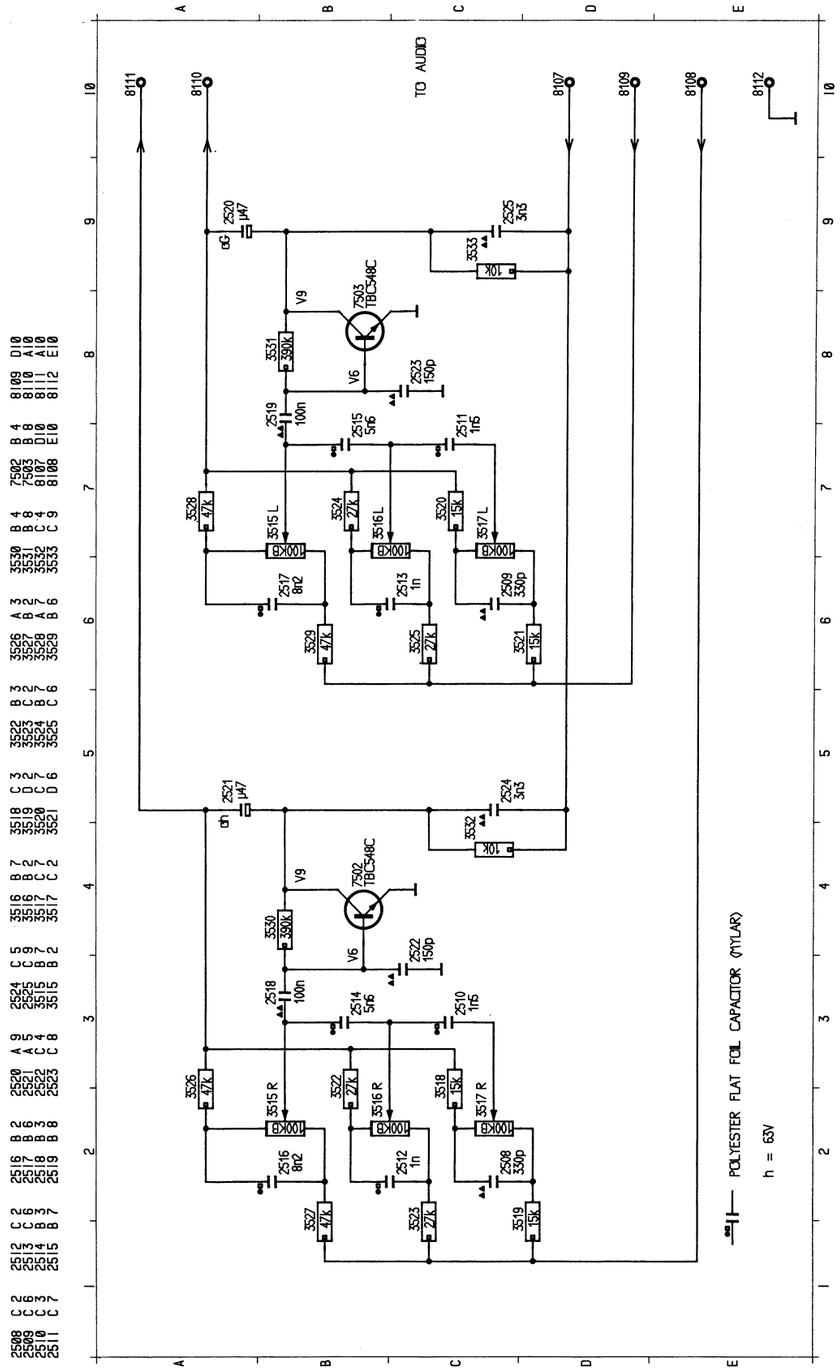
CASSETTE ADJUSTMENT

Adjustment	Cassette	Recorder position		Measure on	Read on	Adjust with	Adjust to
		SK...	Deck				
R/P Head azimuth	8 KHz of SBC420 *	TAPE	PLAY FORWARD	1250	mV meter	Right hand screw R/P head	Maximum L = R
			PLAY REVERSE	1250	mV meter	Left hand screw R/P head	Maximum L = R
Motor speed	3150Hz of SBC420 *	TAPE	PLAY	1250	Wow and flutter meter	Preset in motor	3150 Hz +3/-2% **

* SBC420 : 4822 397 30071
** The Wow & Flutter value can be read.
This value should not exceed 0.3%.

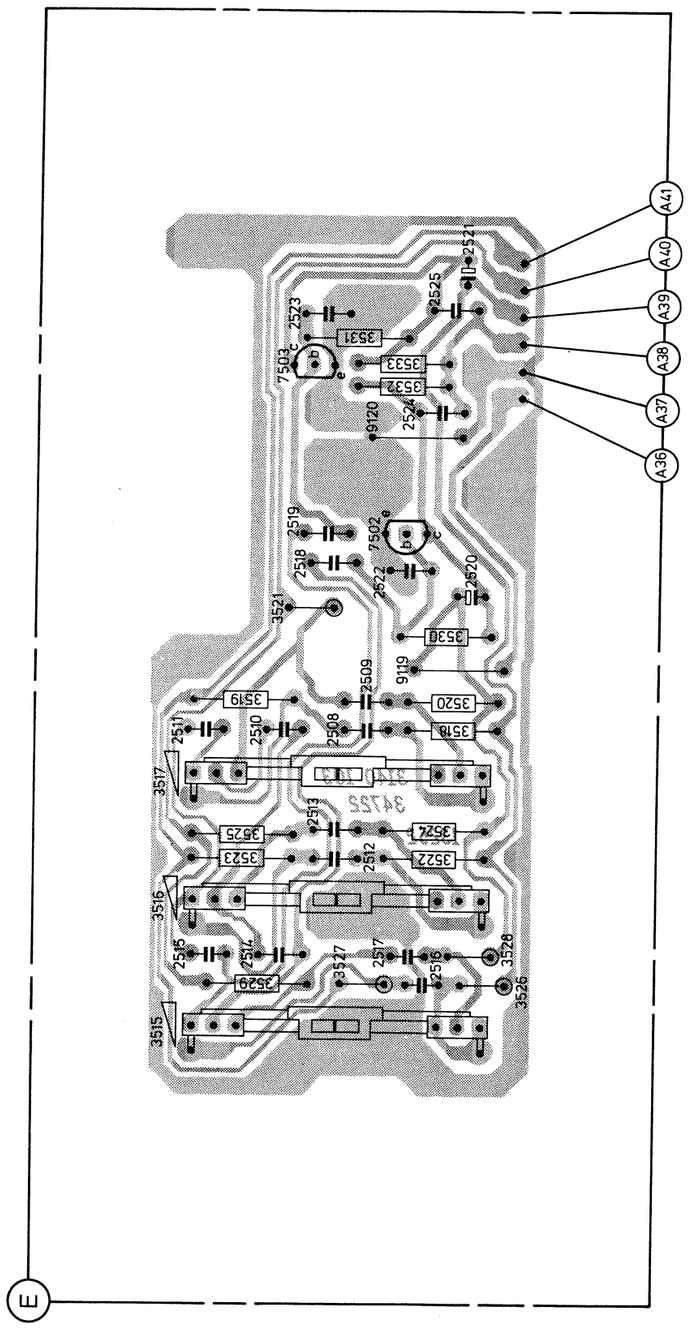
| | | | | | |

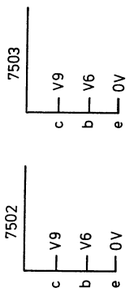
| | | |

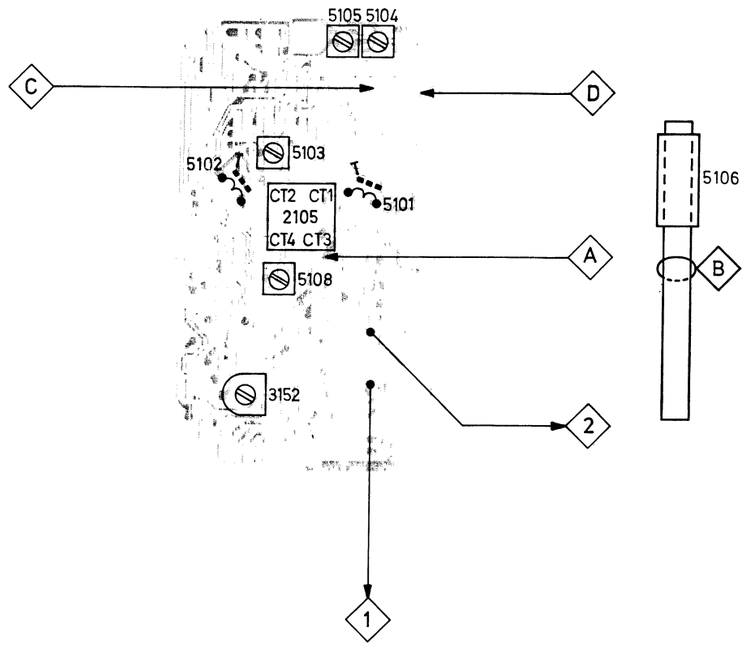

TO AUDIO
8111
8110
8107
8109
8108
8112
2520 µ47
2525 3n3
3533 10K
7503 TBC548C
V9
V6
3531 390K
2523 150p
2519 100n
2515 5n6
2511 1n5
3528 47K
3524 27K
3520 15K
3515 L
3516 L
3517 L
100KB
2517 8n2
2513 1n
2509 330p
3529 47K
3525 27K
3521 15K
2521 µ47
2524 3n3
3532 10K
7502 TBC548C
3530 390K
2522 150p
2518 100n
2514 5n6
2510 1n5
3526 47K
3522 27K
3518 15K
3515 R
3516 R
3517 R
2516 8n2
2512 1n
2508 330p
3527 47K
3523 27K
3519 15K
POLYESTER FLAT FOIL CAPACITOR (MYLAR)
h = 63V

| | | |

MISC.										
C.										9119
									2511	2510
								2513		
							2512			
						2515	2514			
						2516	2517			
R.						3515	3529	3516	3523	3525
						3527	3526	3528	3522	3524
									3517	3519
									3518	3520
									3521	3530





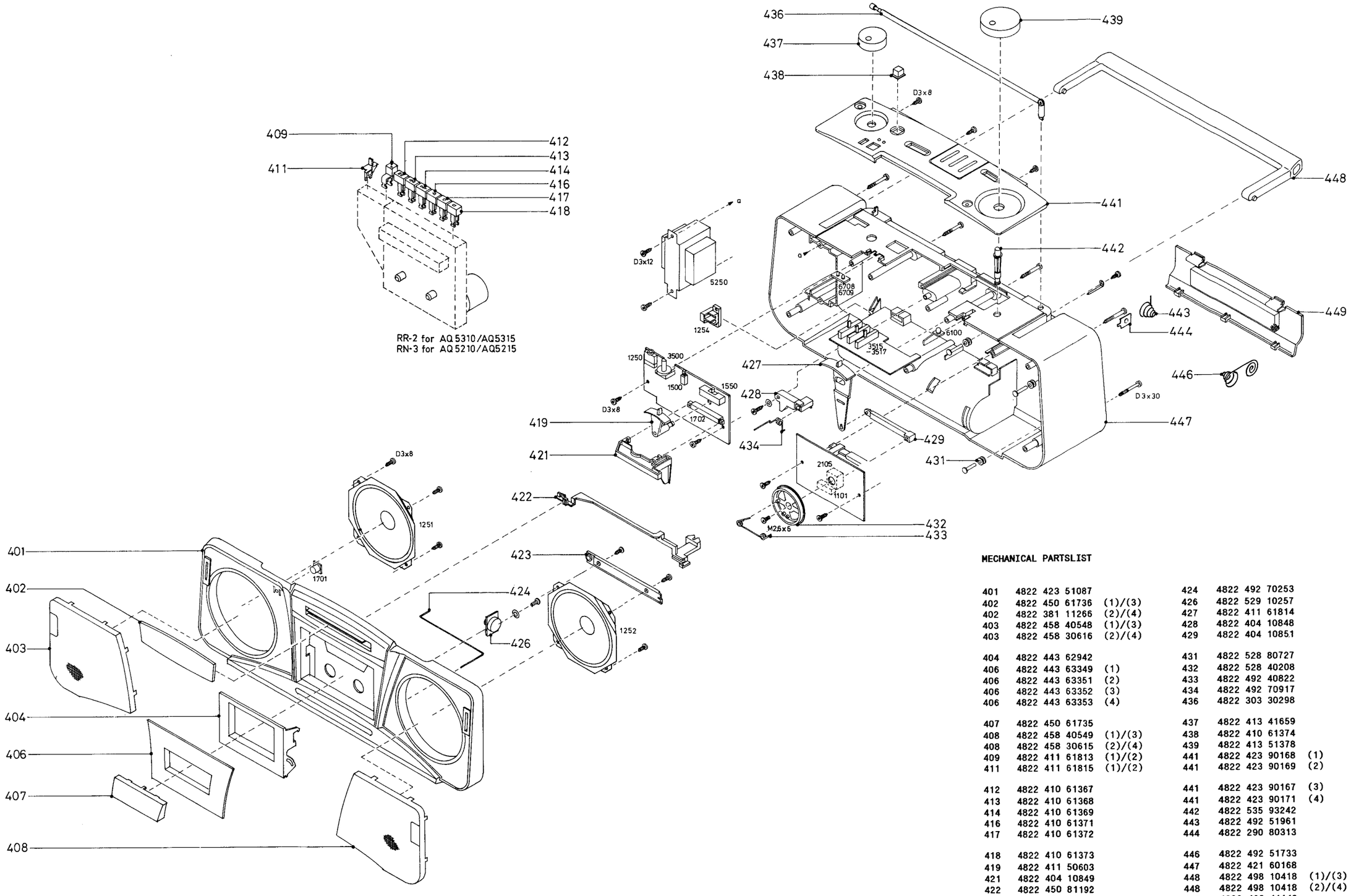


Carbon film 0.2 W	70°C	5%	
Carbon film 0.33 W	70°C	5%	
Metal film 0.33 W	70°C	5%	
Carbon film 0.5 W	70°C	5%	
Carbon film 0.67 W	70°C	5%	
Carbon film 1.15 W	70°C	5%	

© Chip component

Ceramic plate Tuning ⩽ 120 pF NP.0		2%
Others		—20/+80%
Polyester flat foil		10%
Metalized polyester flat film		10%
Polyester flat foil small size (Mylar)		10%
Polysterene film/foil		1%
Tubular ceramic		
Miniature single		
Subminiature tantalum		± 20%

*a	= 2,5 V
b	= 4 V
c	= 6,3 V
d	= 10 V
e	= 16 V
f	= 25 V
g	= 40 V
h	= 63 V
j	= 100 V
l	= 125 V
m	= 150 V
n	= 160 V
q	= 200 V
r	= 250 V
s	= 300 V
t	= 350 V
u	= 400 V
v	= 500 V
w	= 630 V
x	= 1000 V
A	= 1,6 V
B	= 6 V
C	= 12 V
D	= 15 V
E	= 20 V
F	= 35 V
G	= 50 V
H	= 75 V
I	= 80 V



MECHANICAL PARTSLIST

401	4822 423 51087		424	4822 492 70253	
402	4822 450 61736	(1)/(3)	426	4822 529 10257	
402	4822 381 11266	(2)/(4)	427	4822 411 61814	
403	4822 458 40548	(1)/(3)	428	4822 404 10848	
403	4822 458 30616	(2)/(4)	429	4822 404 10851	
404	4822 443 62942		431	4822 528 80727	
406	4822 443 63349	(1)	432	4822 528 40208	
406	4822 443 63351	(2)	433	4822 492 40822	
406	4822 443 63352	(3)	434	4822 492 70917	
406	4822 443 63353	(4)	436	4822 303 30298	
407	4822 450 61735		437	4822 413 41659	
408	4822 458 40549	(1)/(3)	438	4822 410 61374	
408	4822 458 30615	(2)/(4)	439	4822 413 51378	
409	4822 411 61813	(1)/(2)	441	4822 423 90168	(1)
411	4822 411 61815	(1)/(2)	441	4822 423 90169	(2)
412	4822 410 61367		441	4822 423 90167	(3)
413	4822 410 61368		441	4822 423 90171	(4)
414	4822 410 61369		442	4822 535 93242	
416	4822 410 61371		443	4822 492 51961	
417	4822 410 61372		444	4822 290 80313	
418	4822 410 61373		446	4822 492 51733	
419	4822 411 50603		447	4822 421 60168	
421	4822 404 10849		448	4822 498 10418	(1)/(3)
422	4822 450 81192		448	4822 498 10418	(2)/(4)
423	4822 404 10852		449	4822 423 41142	

Remarks : (1) AQ5310
(2) AQ5315
(3) AQ5210
(4) AQ5215

ELECTRICAL PARTS LIST

- IC -			
7151	4822 209 71836	TEA5591/N3	
7152	4822 209 71321	AN7411	
7250	4822 209 63783	TA8217P	
7703	4822 209 70997	AN7312	
- Transistors -			
7101–7103, 7701,7702	4822 130 44196	TBC548C	
7251	4822 130 40948	TBC548A	
7500,7501	4822 130 62741	1402B	
7700	4822 130 44568	TBC557B	
7704	4822 130 44197	TBC558B	
- Diodes -			
6250–6253	4822 130 31438	1N4001	
6700–6705, 6707–6710	4822 130 30621	1N4148	
6254	4822 130 34167	BZX79-C6V2	
6706	4822 130 34233	BZX79-C5V1	
6100	4822 130 60381	LED LN21RPH	
6708,6709	4822 130 31274	LED TLR124	
-Resistors -			
3152	4822 100 11258	Preset 10K	
3500	4822 101 21163	Volume 50KA	
3515-3517	4822 105 11095	VR Slide 100KB	
3730	4822 052 10228	Res-fuse 2.2R	

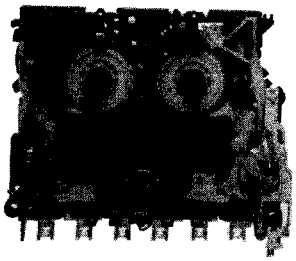
- C -			
2105	4822 125 30027	Polyvarcon	
- Coils -			
5700	4822 157 63134	560µH	
5700	4822 157 53473	1mH	
5701	4822 157 53518	270µH	
5106	4822 157 63299	Ant – MW	
5108	4822 156 11024	Osc – MW	
5103	4822 156 30958	IFT – FM	
5104	4822 157 63298	IFT – AM	
5105	4822 157 63297	IFT – AM	
- Miscelleous -			
5109	4822 242 71869	Cer. Filter	
1102	4822 526 10176	Ferrite Bar	
1101	4822 277 10957	Sw-Slide Band	
1500	4822 276 10991	Sw-Push DBB	
1550	4822 277 21529	Sw-Slide T/R	
1702	4822 277 20594	Sw-Slide R/P	
1701	4822 242 30176	Microphone	
5251,5252	4822 280 10234	Piezo Buzzer	
1251,1252	4822 240 40189	Spkr. 4" 3.2Ω	
1250	4822 267 31363	Socket - h/p	
1254 * ⚠	4822 264 30231	Socket–mains	
1254 # ⚠	4822 265 20279	Socket–mains	
5250 * ⚠	4822 146 30989	Transf–mains	
5250 # ⚠	4822 146 30993	Transf–mains	

* for -/00 versions
\# for -/17 versions

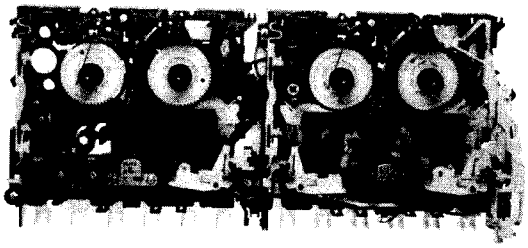
Tape transport RN/RR
RDN/RDR

General documentation

Service
Service
Service



44 993 A11



44 990 A11

Service Manual

(GB) MAINTENANCE

It is recommended to clean the recorder after approx. 500 hours of operation.

To be cleaned with alcohol or spirit

- Erase head
- Recording/playback head
- Belts
- Capstan
- Pressure roller

(NL) ONDERHOUD

Aanbevolen wordt het apparaat na ca. 500 bedrijfsuren schoon te maken

Schoonmaken met alcohol of spiritus:

- Wiskop
- Opneem-/weergeefkop
- Snaren
- Toonas
- Drukrol

(F) ENTRETIEN

L'appareil devra être nettoyé après env. 500 heures de marche aux points les plus importants.

Nettoyer les éléments suivants à l'alcool ou à l'alcool à brûler:

- Tête effacement
- Tête enregistrement/reproduction
- Corroies
- Cabestan
- Galet presseur

(D) WARTUNG

Es empfiehlt sich, das Gerät nach ca. 500 Betriebsstunden zu reinigen

Reinigen mit Alkohol oder Spiritus:

- Löschkopf
- Aufnahme/Wiedergabe-Kopf
- Antriebsriemen
- Tonachse
- Andruckrolle

(I) MANUTENZIONE

E consigliabile pulire l'apparecchio dopo circa 500 ore di funzionamento ai punti principali.

Pulire con alcool

- Testina di cancellazione
- Testina di registrazione/riproduzione
- Cinghie
- Capstan
- Rullo preminastro

DocumentationTechnique Service Dokumentation Documentazione di Servizio Huolte-Ohje Manual de Servicio Manual de Serviço

"Pour votre sécurité, ces documents doivent être utilisés par des spécialistes agréés, seuls habilités à réparer votre appareil en panne".

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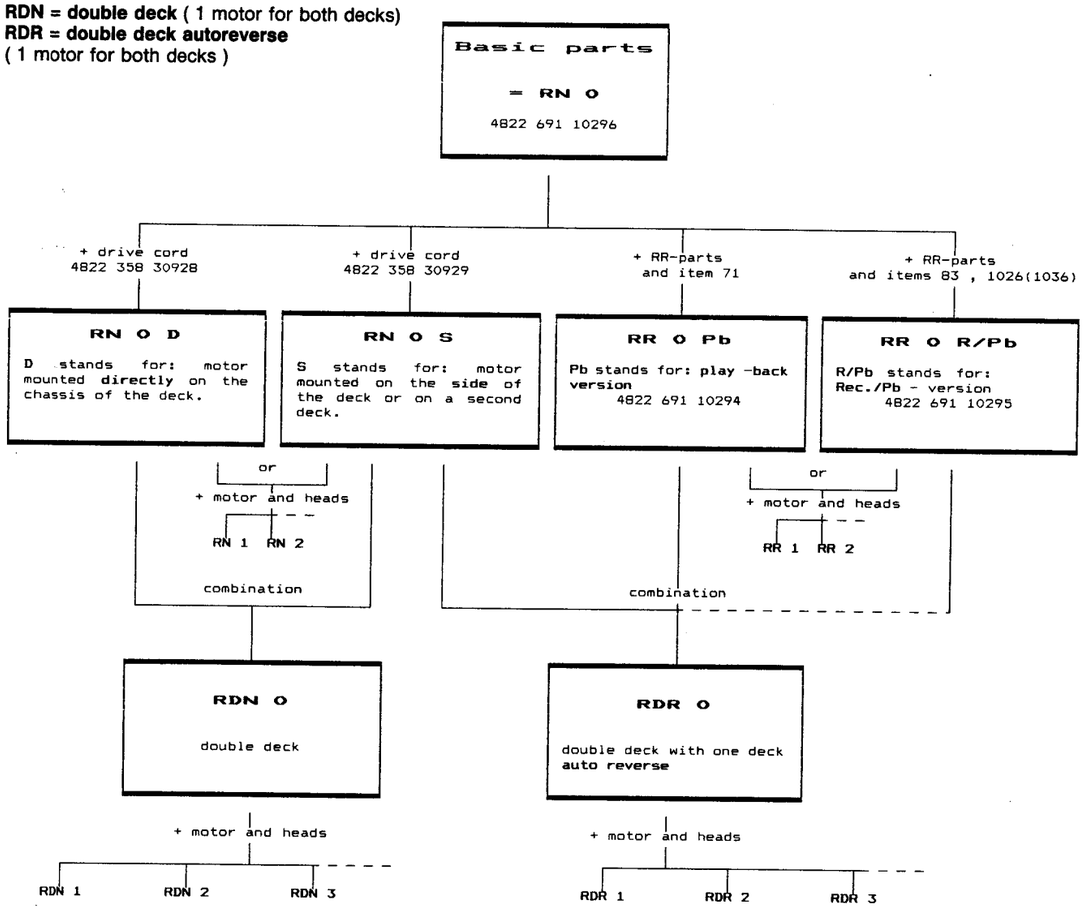
RN / RR – system:

RN = single deck
RR = single deck autoreverse -

RDN = double deck (1 motor for both decks)
RDR = double deck autoreverse
(1 motor for both decks)


Basic parts
= RN 0
4822 691 10296
+ drive cord 4822 358 30928
+ drive cord 4822 358 30929
+ RR-parts and item 71
+ RR-parts and items 83 , 1026(1036)
RN 0 D
D stands for: motor mounted directly on the chassis of the deck.
RN 0 S
S stands for: motor mounted on the side of the deck or on a second deck.
RR 0 Pb
Pb stands for: play -back version
4822 691 10294
RR 0 R/Pb
R/Pb stands for: Rec./Pb - version
4822 691 10295
or
+ motor and heads
RN 1 RN 2
combination
or
+ motor and heads
RR 1 RR 2
combination
RDN 0
double deck
RDR 0
double deck with one deck auto reverse
+ motor and heads
RDN 1 RDN 2 RDN 3
+ motor and heads
RDR 1 RDR 2 RDR 3

(GB)

Version 0 stands for deck without motor and heads.The various motors and heads give the various versions of tapetransports.
For codenumbers of motors and heads see separate manual of the corresponding tapetransport – version.

(F)

La version 0 correspond á une mécanique sans moteur ni têtes. Ce sont eu fait les differents moteurs et têtes qui sont de terminauts pour le n° que porte une ceztaine version d'une mécanique.
Veuillez vous reporter á la Documentation traitant d'un version précise en matiére de codes des mouteurs et des têtes.

(NL)

Versie 0 staat voor een loopwerk zonder motor en magneetkoppen. Der vershillende motors en koppen bepalen der verschillende loopwerkversies.
De codenummers van de motors en koppen zijn vermeld in de documentatie van de betreffende loopwerkversie.

(D)

Version 0 steht für : Laufwerk ohne Motor und Köpfe. Die verschiedenen Motoren und Köpfe bestimmen die verschiedenen Versionen der Laufwerke.
Die Codenummern der Motoren und Köpfe entnehmen Sie bitte der Dokumentation der betreffenden Version.

(I)

La versione 0 corrisponde ad un meccanismo privo di motore e testine. Infatti sono i motori e le testine che determinano il número di codice di una certa versione di un meccanismo.
Per quanto concerne i codici per motori e testine, riferirsi alla Documentazione de Servizio della versione precisa di cui si tratta.

SERVICE HINTS

(GB) DISMANTLING

- **Removal of the pressure roller 40+41 (76+73)**
  Press locklug of headsupport aside and pull up lever 40 (73).
- **Removal of take up clutch 402**
  Press locklugs apart (e.g.with a small pair of tweezers) and pull up 402.
- **Head support**
  Cannot be removed because suppression spring 39 has to be assembled with a special tool which is not available in the workshops.

ADJUSTMENTS and CHECKS

- Check of **pressure roller force** against capstan:
  The force of the pressure roller against the capstan should be 240 ± 30 p.
  Measuring method:
  Pb mode with arbitrary cassette. Push the pressure roller with a spring pressure gauge (4822 395 80028) away from the capstan – see fig.2
  Read force just in that moment when tape travel stops.
  This pressure cannot be adjusted!
- **Take up clutch 402**
  The torque can be measured with friction test cassette 4822 395 30054 in play mode.
  Requirement:
  take up torque: 40 – 65 pcm
  (permissible variation 5 pcm)
  supplying reel: 2 – 4 pcm
- **FF/REW torque**
  Use friction testcassette 4822 395 30054
  FF– or Rew – mode
  Stop supplying reel by hand and read friction force – requirement: 55 – 90 pcm
- Check of **tape travel and capstan adjustment:**
  Use mirror cassette 4822 395 30058 in play mode.
  If the tape moves up or down at the capstan the capstan has to be adjusted perpendicularly with the flywheel bearing 5.
  The tape should travel straight and smoothly between the tapeguides and along the capstan.Small deviations in this pattern are permissible since their effect is negligible with a normal cassette.

  Attention: In case of a reverse deck it is important to check tape travel in both directions after adjustment of the azimuth of the Rec./Pb – head ---- repeat if necessary.

  For **adjustment of the azimuth** of the Rec./Pb – head and the **tape speed** refer to the concerning service manual of the set.

(NL) SERVICE–HINTS

DEMONTAGE

- **Verwijderen van aandrukrol 40+41 (76+73)**
  Duw de vergrendellip van de kopsteun opzij en trek hefboom 40 (73) omhoog.
- **Verwijderen van opwikkelkoppeling 402**
  Duw de vergrendellippen opzij (bijvoorbeeld met een klein pincet) en trek de koppeling 402 omhoog.
- **Kopsteun**
  De kopsteun kan niet worden verwijderd omdat voor de montage van drukveer 39 een speciaal stuk gereedschap is vereist dat in een werkplaats niet voorhanden is.

AFSTELLINGEN en CONTROLES

- Controleren van de kracht **van de aandrukrol** tegen de kaapstander:
  De druk van de aandrukrol tegen de kaapstander moet zijn 240 ± 30p.
  Meetmethode:
  Plaats een willekeurige cassette en druk de weergavetoets in. Trek de aandrukrol met een veerdrukmeter (4822 395 80028) weg van de kaapstander – zie afbeelding 2.
  Lees de waarde af precies op het moment dat de band stopt.
  Deze druk kan niet worden bijgeregeld.
- **Opwikkelkoppeling 402**
  Het koppel kan worden gemeten met behulp van de frictietestcassette 4822 395 30054 in de weergavestand.
  Eis:
  opwikkelkoppel: 40 – 65 pcm
  (toegestane afwijking 5 pcm)
  afwikkelspoel: 2 – 4 pcm
- **koppel bij vooruit–/terugspoelen**
  Gebruik frictietestcassette 4822 395 30054 in de stand vooruitspoelen of terugspoelen.
  Houd de afwikkelspoel met de hand stil en lees de wrijvingskracht af – eis: 55 – 90 pcm.
- Controleren van **bandtransport en kaapstander–instelling:**
  Gebruik spiegelcassette 4822 395 30058 in de stand weergeven.
  Als de band bij de kaapstander op en neer gaat, moet de kaapstander verticaal worden bijgesteld met behulp van vliegwiellager 5.
  De band moet recht en soepel tussen de bandgeleiders langs de kaapstander lopen. Kleine afwijkingen in dit patroon zijn toelaatbaar omdat het effect ervan bij een normale cassette te verwaarlozen is.

  Aandacht: In geval van een deck dat zowel kan opnemen als weergeven, is het belangrijk om na de azimuthinstelling van de opname–/weergavekop het bandtransport in beide richtingen te controleren.
  Indien nodig de instelling herhalen.
  Voor **de azimuthinstelling** van de weergave–/opnamekop en de **bandsnelheid** gelieve u de servicehandleiding van het betreffende apparaat te raadplegen.

(F) CONSEILS D'ENTRETIEN

DEMONTAGE

Démontage du galet presseur 40+41 (76+73) Poussez sur le côté la patte de serrage du support de la tête de lecture et remontez le levier 40 (73).

Démontage de la griffe enrouleuse 402
Poussez à l'écart les pattes de serrage (par exemple avec des pincettes) et tirez la griffe 402 vers le haut.

Support de tête de lecture
Ne peut être retiré car le ressort de suppression 39 doit être monté au moyen d'un outil spécial non disponible dans les ateliers.

REGLAGES ET VERIFICATIONS

- Vérification de **la pression des galets presseurs** contre le cabestan :
  La pression exercée contre le cabestan doit être de 240 ± 30 p.
  Méthode de mesure :
  En mode lecture avec une cassette arbitraire.

Eloignez du cabestan le galet presseur avec un manomètre à ressorts (4822 395 80028)– Fig.2 Lisez la pression au moment où la bande cesse de défiler. Cette pression ne peut pas être réglée !

- **Griffe enrouleuse 402**
  Le moment de torsion peut être mesuré à l'aide de la cassette de test à friction 4822 395 30054 en mode lecture.
  Condition requise :
  Moment de torsion de l'enrouleuse : 40–65 MIC
  Variation autorisée : 5 MIC
  Bobine débitrice : 2 – 4 MIC

- **Moment de torsion FF/REW (bobinage rapide/rebobinage)**
  Utilisez la cassette de test à friction 4822 395 30054
  Mode bobinage rapide ou rebobinage.
  Arrêtez la bobine débitrice à la main et lisez la force de friction: 55 – 90 MIC exigés

- Contrôle du **défilement de bande et du réglage du cabestan** :
  Utilisez la cassette à miroir 4822 395 30058 en mode lecture Si la bande se déplace vers le haut ou vers le bas du cabestan, vous devez ajuster le cabestan perpendiculairement avec le palier 5 du volant.
  La bande doit défiler en ligne droite et doucement entre les guides de bande. De faibles déviations de ce modèle sont autorisées car leur effet est négligeable avec une cassette conven– tionnelle.

  Attention :
  Dans le cas d'une platine cassette à inversion de défilement, il est très important de vérifier le défilement de bande dans les deux sens après le réglage de l'azimut de la tête de lecture/enregistrement.
  Répétez cette opération si nécessaire.

  Pour **le réglage de l'azimut** de la tête de lecture/enregistrement et **la vitesse de bande**, reportez–vous au manuel d'entretien correspondant.

(D) AUSBAU

- **Andruckrolle 40+41 (76+73) entfernen:**
  Sperrzunge der Kopfträgerplatte zur Seite drücken und Hebel 40 (73) hochziehen.
- **Aufwickelkupplung 402 entfernen:**
  Rasthaken auseinanderdrücken (z.B. mit spitzer Pinzette) und gleichzeitig 402 hochziehen.
- **Kopfträgerplatte**
  Kann nicht ausgebaut werden,da Druckfeder 39 nur mit einem Spezialwerkzeug montiert werden kann.

EINSTELLUNGEN und KONTROLLEN

- Kontrolle des **Anpreßrollendruckes**
  Der Druck der Anpreßrolle 41 (76) an die Tonachse soll 240 ± 30 p betragen.
  Meßmethode: Stellung "play" mit beliebiger Kassette.Anpreßrolle mit einer Federwaage (4822 395 80028) – Ansetzpunkt siehe Fig. 2 – von der Tonachse wegdrücken. Lesen Sie die Kraft in dem Moment ab,wenn der Bandtransport stoppt.
  Dieser Druck kann nicht eingestellt werden!
- **Aufwickelrutschkupplung 402**
  Das Aufwickelmoment wird mit der Meßkassette 4822 395 30054 in Stellung "play" gemessen.
  Anforderung:
  Aufwickelmoment: 40 – 65 pcm
  (zulässige Schwankung 5 pcm)
  Gegenzug: 2 – 4 pcm
- **FF / REW – Moment**
  Stellung "FF" bzw. "REW"
  Meßkassette 4822 395 30054 verwenden.
  Jeweiligen Abwickelteller mit der Hand blockieren und Moment ablesen.
  Anforderung: 50 – 90 pcm
- Kontrolle des **Bandlaufs** und der **Tonwelleneinstellung:**
  Verwenden Sie Spiegelkassette 4822 395 30058 in Stellung "play".
  Wenn sich das Band an der Tonwelle nach oben oder unten bewegt,muß die Tonwelle mit dem Exzenterlager 5 senkrecht gestellt werden.
  Das Band soll gerade und genau fluchtend zwischen den Bandführungen der Köpfe und an der Tonwelle entlang laufen.Geringe Abweichungen in diesem Bild sind zulässig, da sie bei einer normalen Kassette nicht beeinträchtigend wirken.

  Achtung: Bei Reverse – Laufwerken ist es wichtig,nach Einstellung des Azimuths den Bandlauf in beiden Richtungen zu kontrollieren ------ falls notwendig, wiederholen.
  Für Einstellung des **Azimuths** des REC/Pb –Kopfes und der **Bandgeschwindigkeit** siehe Servicedokumentation des betreffenden Gerätes.

(I) CONSIGLI DI SERVIZIO ASSISTENZA

SMONTAGGIO

- **Smontaggio del rullino pressanastro 50+41 (76+73)**

  Spingere la linguetta di bloccaggio del supporto delle testine lateralmente e tirare in alto la leva 40 (73).

- **Smontaggio dell'accoppiamento di avvolgimento 402**

  Spingere le linguette di bloccaggio lateralmente (p.e. con una piccola pinza) e tirare in alto l'accoppiamento 402.

- **Supporto delle testine**

  Non è possibile smontare il supporto delle testine dato che lo smontaggio della molla di spinta 39 richiede un attrezzo speciale che non è disponibile in un'officina.

REGISTRAZIONI e CONTROLLI

- Controllo della **forza del rullino pressanastro** contro il rullino trainonastro:
  La forza del rullino pressanastro contro il rullino trainonastro deve essere di 240 ± 30 p.

  Metodo di misurazione:
  Inserire una qualsiasi cassetta e premere il tasto di riproduzione. Allontanare il rullino pressanastro con un misuratore della pressione elicoidale (4822 395 80028) dal rullino trainonastro (fig. 2).
  Leggere il valore proprio al momento che il nastro si arresta.
  Non è possibile correggere questa pressione!
- **Accoppiamento di avvolgimento 402**

  La coppia può essere misurata con l'aiuto della cassetta di controllo della frizione 4822 395 30054 nel modo di riproduzione.
  Valori prescritti:
  Coppia di avvolgimento: 40–65 pcm.
  (tolleranza: 5 pcm)
  Bobina di svolgimento : 2–4 pcm.
- **Coppia di avvolgimento/riavvolgimento**

  Servirsi della cassetta di controllo della frizione 4822 395 30054 nel modo di avvolgimento o riavvolgimento.
  Bloccare con la mano la rotazione della bobina di svolgimento e leggere la forza di frizione.
  Valore prescritto: 55–90 pcm.

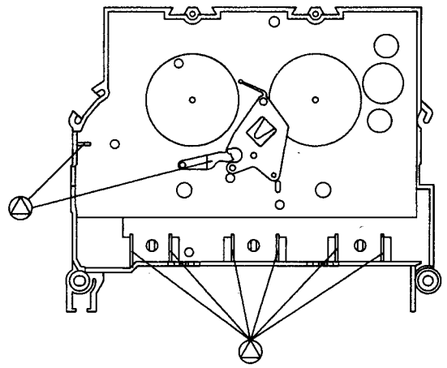
BASIC PARTS
RN/RR-TAPE DECK

40	4822 402 10037	lever pinchroller right
41	4822 528 70646	pinch roller
401	4822 691 10296	RN 0 assy
402	4822 528 20676	take up clutch assy

Only those parts of which a service code number is stated are service parts.

RN0 (401)

BOTTOM VIEW OF CHASSIS WINDPLATE



LUBRICANT (MOBIL SHC 634) tem No. 48
GREASE (SHELL ALVANIA RS) tem No. 49
HANNOSIL–RELEASE AGENT M tem No. 50

FOR SERVICE NO LUBRICATION IS NECESSARY EXCEPT PART WILL BE RENEWED

- Controllo della regolazione del **trasporto del nastro e** del rullino trainonastro

  Servirsi della cassetta a specchio 4822 395 30058 nel modo di riproduzione.
  Se il nastro si sposta in alto ed in basso dalla parte del rullino trainonastro, registrare il rullino trainonastro in senso verticale con l'aiuto del cuscinetto del volano 5.
  Il nastro deve passare ben diritto ed agevolmente tra le guide del nastro lungo il rullino trainonastro. Sono consentite piccole deviazioni dato che il loro effetto è trascurabile con l'uso di una cassetta normale.

  Attenzione: in caso l'apparecchio permetta sia la registrazione che la riproduzione, a registrazione avvenuta dell'azimut della testina di registrazione/riproduzione è importante controllare il trasporto del nastro nei due sensi. Se necessario, ripetere la registrazione.
  Per la **registrazione dell'azimut** della testina di registrazione/riproduzione e la **velocità di trasporto del nastro**, consultare il manuale di servizio assistenza dell'apparecchio in questione.

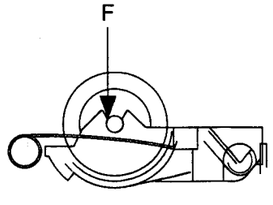
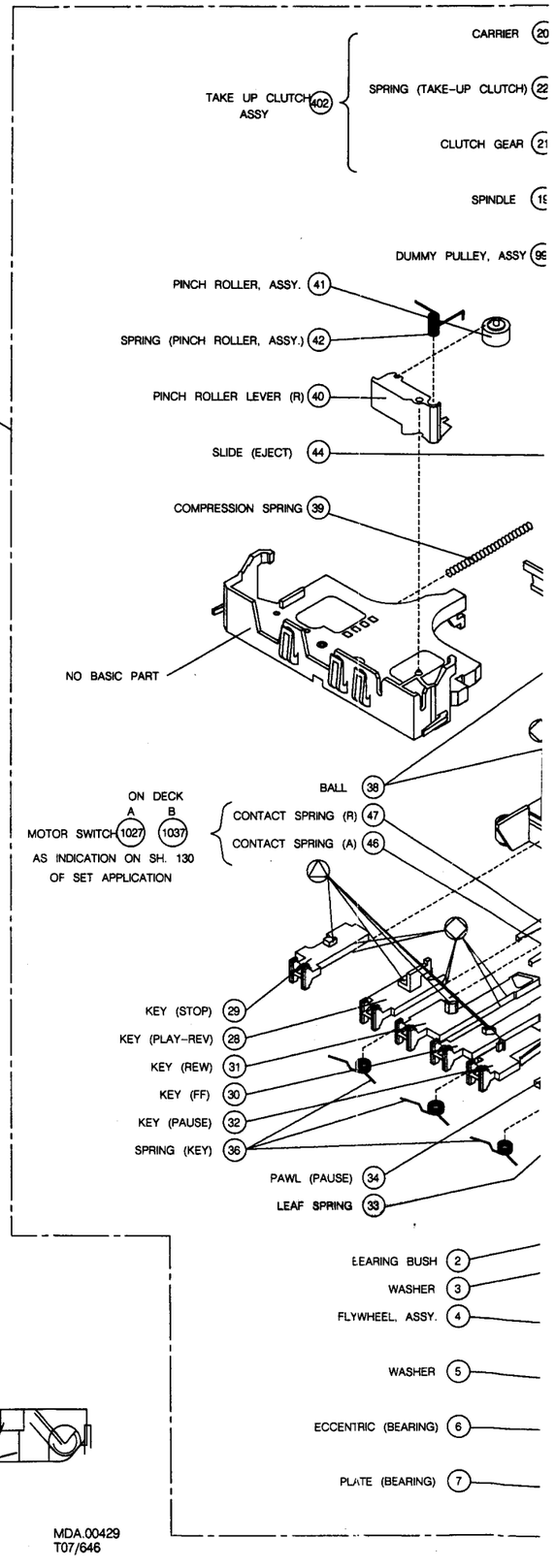


FIG 2



MDA.00429
T07/646

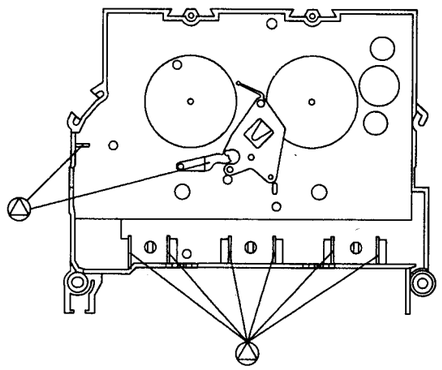
BASIC PARTS
RN/RR-TAPE DECK

40	4822 402 10037	lever pinchroller right
41	4822 528 70646	pinch roller
401	4822 691 10296	RN 0 assy
402	4822 528 20676	take up clutch assy

Only those parts of which a service code number is stated are service parts.

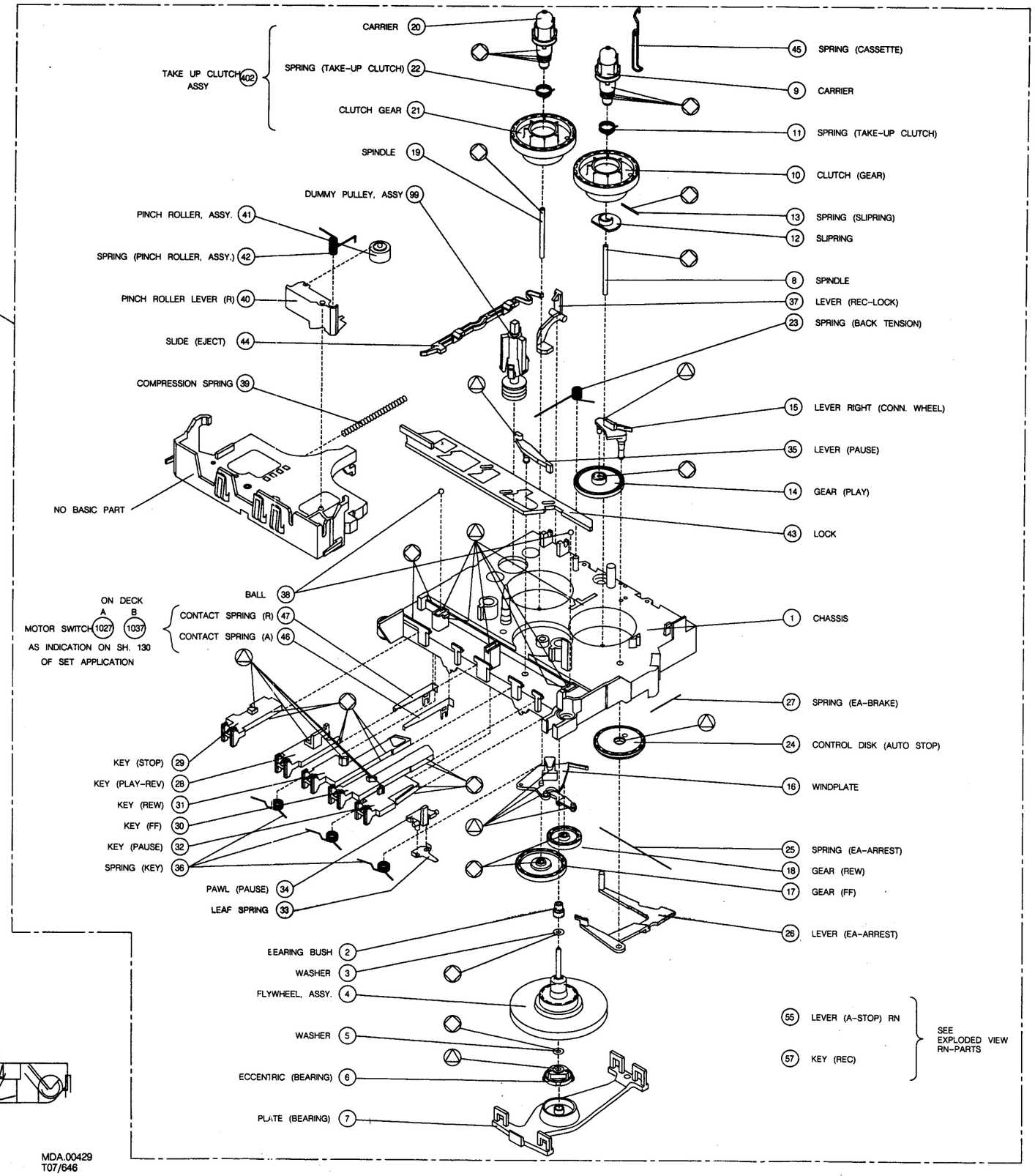
RN0 (401)

BOTTOM VIEW OF CHASSIS WINDPLATE



LUBRICANT (MOBIL SHC 634) terh No. 48
GREASE (SHELL ALVANIA RS) terrl No. 49
HANNOSIL-RELEASE AGENT M terrl No. 50

FOR SERVICE NO LUBRICATION IS NECESSARY EXCEPT PART WILL BE RENEWED



- Controllo della regolazione del **trasporto del nastro e** del rullino trainonastro

  Servirsi della cassetta a specchio 4822 395 30058 nel modo di riproduzione.
  Se il nastro si sposta in alto ed in basso dalla parte del rullino trainonastro, registrare il rullino trainonastro in senso verticale con l'aiuto del cuscinetto del volano 5.
  Il nastro deve passare ben diritto ed agevolmente tra le guide del nastro lungo il rullino trainonastro. Sono consentite piccole deviazioni dato che il loro effetto è trascurabile con l'uso di una cassetta normale.

  Attenzione: in caso l'apparecchio permetta sia la registrazione che la riproduzione, a registrazione avvenuta dell'azimut della testina di registrazione/riproduzione è importante controllare il trasporto del nastro nei due sensi. Se necessario, ripetere la registrazione.
  Per la **registrazione dell'azimut** della testina di registrazione/riproduzione e la **velocità di trasporto del nastro**, consultare il manuale di servizio assistenza dell'apparecchio in questione.

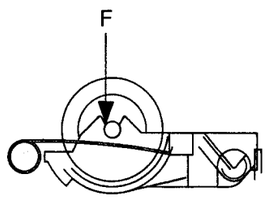


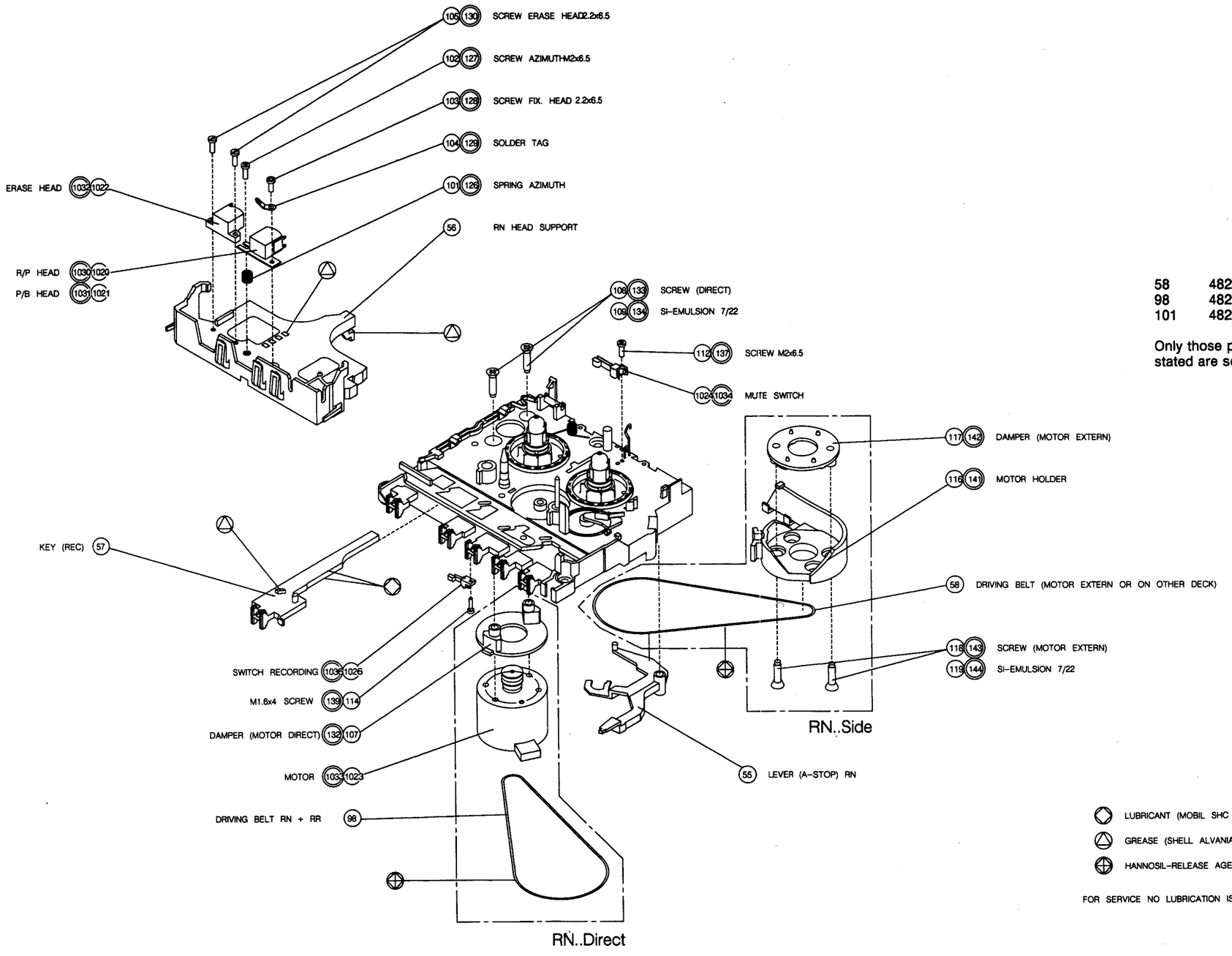
FIG 2

MDA.00429
T07/646

RN-PARTS
(additional to basic parts)

ITEM (100) TO (124) ON "DECK A"

ITEM (125) TO (149) ON "DECK B"


105 130 SCREW ERASE HEAD2.2x6.5
102 127 SCREW AZIMUTH-M2x6.5
103 128 SCREW FIX. HEAD 2.2x6.5
104 129 SOLDER TAG
101 126 SPRING AZIMUTH
56 RN HEAD SUPPORT
ERASE HEAD 1033 1022
R/P HEAD 1030 1020
P/B HEAD 1031 1021
108 133 SCREW (DIRECT)
109 134 SI-EMULSION 7/22
112 137 SCREW M2x6.5
1024 1034 MUTE SWITCH
117 142 DAMPER (MOTOR EXTERN)
116 141 MOTOR HOLDER
58 DRIVING BELT (MOTOR EXTERN OR ON OTHER DECK)
118 143 SCREW (MOTOR EXTERN)
119 144 SI-EMULSION 7/22
RN..Side
KEY (REC) 57
SWITCH RECORDING 1035 1026
M1.6x4 SCREW 139 114
DAMPER (MOTOR DIRECT) 132 107
MOTOR 1032 1023
DRIVING BELT RN + RR 98
55 LEVER (A-STOP) RN
RN..Direct

58	4822 358 30929	driving belt RN 0S
98	4822 358 30928	driving belt RN 0D
101	4822 492 51473	spring azimuth

Only those parts of which a service code number is stated are service parts.

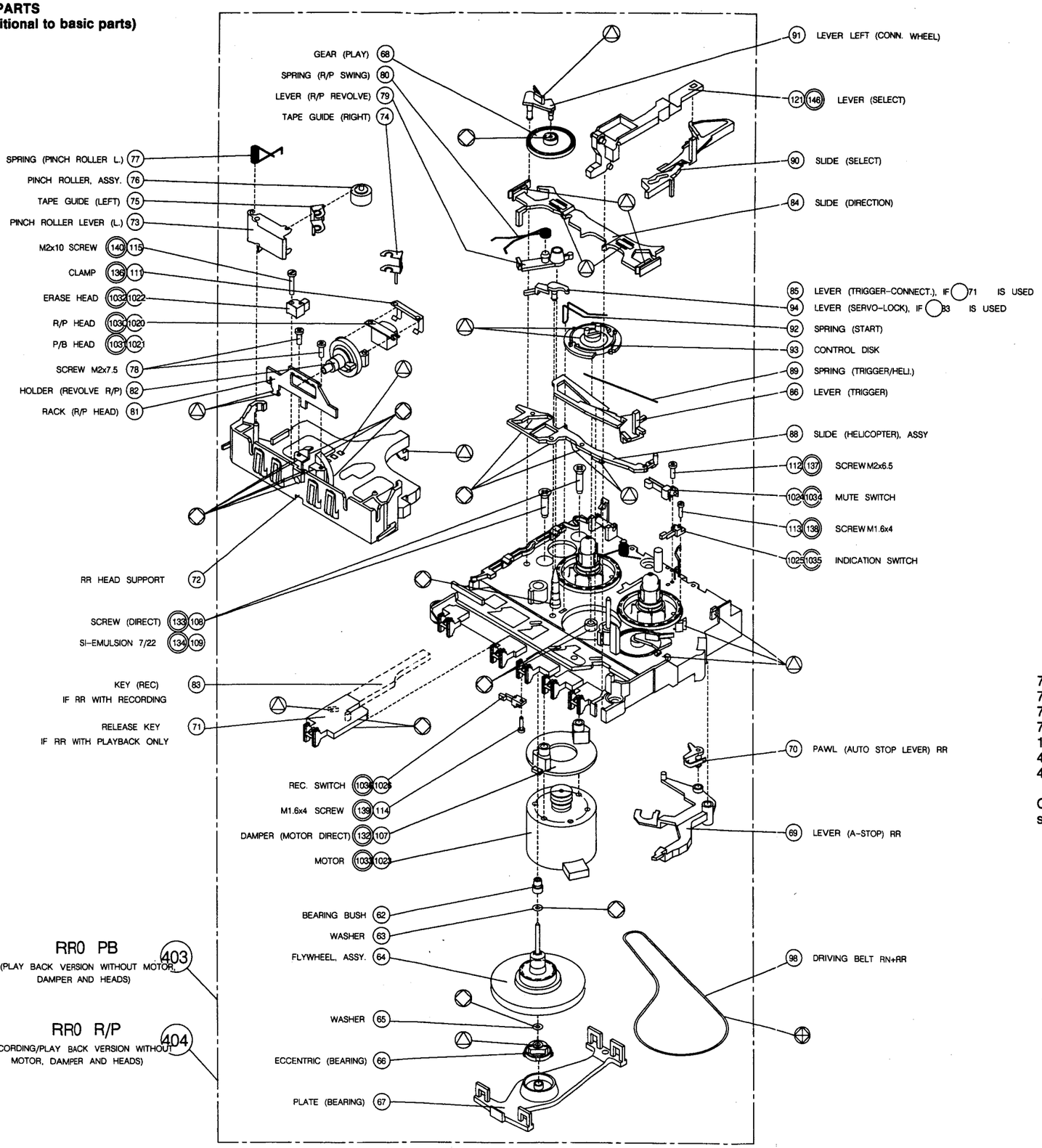
LUBRICANT (MOBIL SHC 634) terh No. 48

GREASE (SHELL ALVANIA RS) terh No. 49

HANNOSIL-RELEASE AGENT M terh No. 50

FOR SERVICE NO LUBRICATION IS NECESSARY EXCEPT PART WILL BE RENEWED

RR-PARTS
(additional to basic parts)


GEAR (PLAY) 68
SPRING (R/P SWING) 80
LEVER (R/P REVOLVE) 79
TAPE GUIDE (RIGHT) 74
SPRING (PINCH ROLLER L.) 77
PINCH ROLLER, ASSY. 76
TAPE GUIDE (LEFT) 75
PINCH ROLLER LEVER (L.) 73
M2x10 SCREW 140 115
CLAMP 136 111
ERASE HEAD 1032 1022
R/P HEAD 1033 1020
P/B HEAD 1031 1021
SCREW M2x7.5 78
HOLDER (REVOLVE R/P) 82
RACK (R/P HEAD) 81
RR HEAD SUPPORT 72
SCREW (DIRECT) 133 108
SI-EMULSION 7/22 134 109
KEY (REC) 83
IF RR WITH RECORDING
RELEASE KEY 71
IF RR WITH PLAYBACK ONLY
REC. SWITCH 1030 1026
M1.6x4 SCREW 139 114
DAMPER (MOTOR DIRECT) 132 107
MOTOR 1033 1024
BEARING BUSH 62
WASHER 63
FLYWHEEL, ASSY. 64
WASHER 65
ECCENTRIC (BEARING) 66
PLATE (BEARING) 67
RR0 PB 403
(PLAY BACK VERSION WITHOUT MOTOR, DAMPER AND HEADS)
RR0 R/P 404
(RECORDING/PLAY BACK VERSION WITHOUT MOTOR, DAMPER AND HEADS)
91 LEVER LEFT (CONN. WHEEL)
121 146 LEVER (SELECT)
90 SLIDE (SELECT)
84 SLIDE (DIRECTION)
85 LEVER (TRIGGER-CONNECT.), IF 71 IS USED
94 LEVER (SERVO-LOCK), IF 83 IS USED
92 SPRING (START)
93 CONTROL DISK
89 SPRING (TRIGGER/HELI.)
86 LEVER (TRIGGER)
88 SLIDE (HELICOPTER), ASSY
112 137 SCREW M2x6.5
1024 1034 MUTE SWITCH
113 138 SCREW M1.6x4
1025 1035 INDICATION SWITCH
70 PAWL (AUTO STOP LEVER) RR
69 LEVER (A-STOP) RR
98 DRIVING BELT RN+RR

ITEM 100 TO 124 ON "DECK A"

ITEM 125 TO 149 ON "DECK B"

73	4822 402 10038	lever pinch roller left
74	4822 535 92992	tape guide right
75	4822 535 92993	tape guide left
76	4822 528 70646	pinch roller
111	4822 492 70393	spring head clamping
403	4822 691 10294	RR0 PB assy
404	4822 691 10295	RR0 R/P assy

Only those parts of which a service code number is stated are service parts.

LUBRICANT (MOBIL SHC 634) term No. 48

GREASE (SHELL ALVANIA RS) term No. 49

HANNOSIL-RELEASE AGENT M term No. 50

FOR SERVICE NO LUBRICATION IS NECESSARY EXCEPT PART WILL BE RENEWED

Service
Service
Service

Product Service Group CE Audio

Service Information

CORRECTIONS TO THE SERVICE MANUAL

* **Front–page**

  Maintenance: Statement, that BELTS should be cleaned with alcohol or spirit, is wrong.

  Correct: Belts must **n o t** be cleaned with alcohol or spirit !
  Reason : Belts are treated with silicone milk to avoid mechanical oscillation.

* **Block diagram** which describes the modular structure of the RN/RR, RDN/RDR system has to be updated.
  For new updated block diagram see annex.

* **Service hints**

  In the service manual there is stated: The head support (pos.56/72) cannot be removed because a special tool is necessary to assemble spring pos.39.
  Now an easy method has been found to assemble spring pos.39 without a special tool —> see annex "Service Hints"

* **Exploded View RR–parts**

  Because of the new RR–Recording–types the exploded view for RR parts has been revised. —>
  For the new, updated, exploded view see annex.

COMPONENTS ADDED TO THE SERVICE PARTSLIST

pos.	7/67	4822 520 10718	bearing plate
pos.	43	4822 404 10853	slide, key locking
pos.	106	4822 403 70385	lever, antiselect
pos.	404	4822 691 20665	RR RECII/0 assy
pos.	405	4822 691 10295	RR RECI/0 assy

CHANGES IN COARSE OF PRODUCTION

(Only reverse decks RR)

* To avoid "tape salad" after pressing the PLAY button, lever pos.91 was adapted.
  The adapted lever has been used from production week 9004 onwards – hot stamped in chassis **004xA** (x stands for production day 1–5, A or B stands for the shift which the part was produced in).

* **Bearing of rotary head:** tolerance in multi–cavity tools adapted.

Fault: Head jams when turned.
This effect occurs only in tape transports assembled with head supports pos.72 just after production start with multi–cavity tools and appears when the drive is used (or was stored) in a climate of more than 80% relative humidity.

Head supports produced with multi–cavity tools can be identified by a 2 digit marking – see fig.1

Bad head supports, where the failure can occur, have only been used in tape transports produced from production week 9024 up to 9031 – hot stamped in the chassis **024xA up to 031xA** (x stands for the production day 1–5, A or B stands for the shift which the part was produced in).

For service purposes the complete transport mechanism RR0 assy 4822 691 10294 is available.

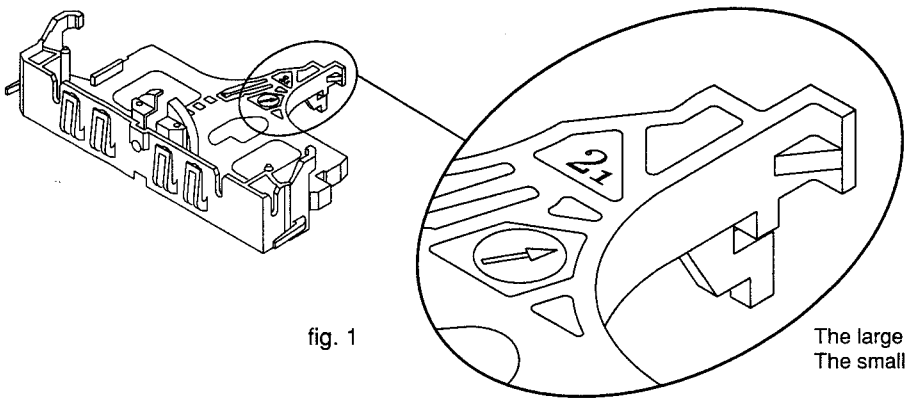


fig. 1

The large digit stands for the tool number.
The small digit stands for the cavity of this tool.

* **Delay board**

To ensure a reliable switch over of the MODE SELECTOR to "normal mode" after full auto shutoff, an electronic delay–circuit was added to all auto reverse tape transports with production change code **WT01**.
For this electronic delay circuit there were 2 different versions available —> for schematic diagrams and assembly drawings see next two pages.

From production week 9042 with change code **WT02** onwards this electronic delay–circuit has been replaced by a mechanical solution:

lever pos. 70 changed
lever pos.106 added 4822 403 70385

Attention: Lever pos.106 is not mounted on all RR0Pb (4822 691 10294), RR–RECI/0 (4822 691 10295) and RR–RECII/0 (4822 691 20665) tape transports, available for service purposes —> because of the changed lever pos.70 the auto–shutoff function does not work without lever pos.106!
If a tape transport with change code **WT01** will be exchanged by a tape transport with change code **WT02** lever pos.106 has to be ordered extra and mounted on the new tape transport. —> see fig.2

From June 92 onwards it is organized that the tape transports will be delivered with lever pos.106 mounted.

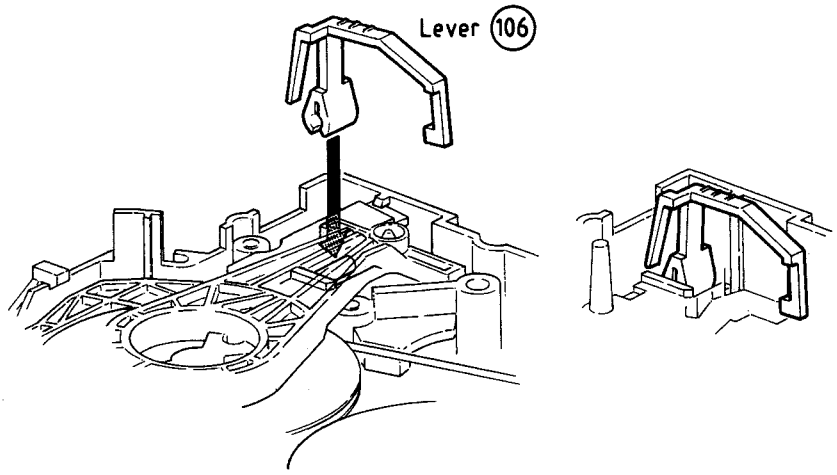


fig. 2

(GB)

REVERSE MODE -position 2 of mode selector 121

"FF" or "REW": On tape end full "auto shut off" will be activated and "mode selector" will be switched over to "normal mode".

To ensure a reliable switching over of the "mode selector in case of "full auto shut off" it is necessary that flywheel makes at least 3 turns after switching off the supply. Therefore a **motor shut off-delay** has been added.

(F)

MODE REVERSE (retour en arrière)- position 2 ou sélecteur de mode 121

"FF" ou "REW" : En fin de bande, l'arrêt total automatique sera activé et le "sélecteur de mode" commutera sur "mode normal".

Pour garantir une commutation fiable du "sélecteur de mode" en cas d'arrêt total automatique, il faut que le volant effectue au moins 3 tours après la mise hors circuit. C'est la raison pour laquelle un **retard d'arrêt du moteur** a été intégré.

(NL)

REVERSE MODE - positie 2 van keuzeschakelaar 121

"FF" of "REW" : Aan het einde van de band wordt de automatische uitschakeling geactiveerd en wordt keuzeschakelaar 121 naar "normal mode" geschakeld.

Om bij automatische uitschakeling een betrouwbare omschakeling van de keuzeschakelaar te waarborgen, is het noodzakelijk dat het vliegwiel na de uitschakeling nog minstens 3 omwentelingen maakt.

Om dit te bereiken is een **uitschakelingsvertraging** voor de motor ingebouwd.

(D)

REVERSE MODE -Position 2 des Mode-Selektors 121

"FF" oder "REW": Am Bandende schaltet die automatische Endabschaltung ab und der "Mode Selektor" wird auf "normal mode" umgeschaltet.

Um ein zuverlässiges Umschalten des "Mode Selektors" nach der automatischen Endabschaltung zu gewährleisten, ist es notwendig, dass die Schwungmasse nach dem Abschalten noch mindestens 3 Umdrehungen macht.

Deshalb wurde eine **Motor-Abschaltverzögerung** eingebaut.

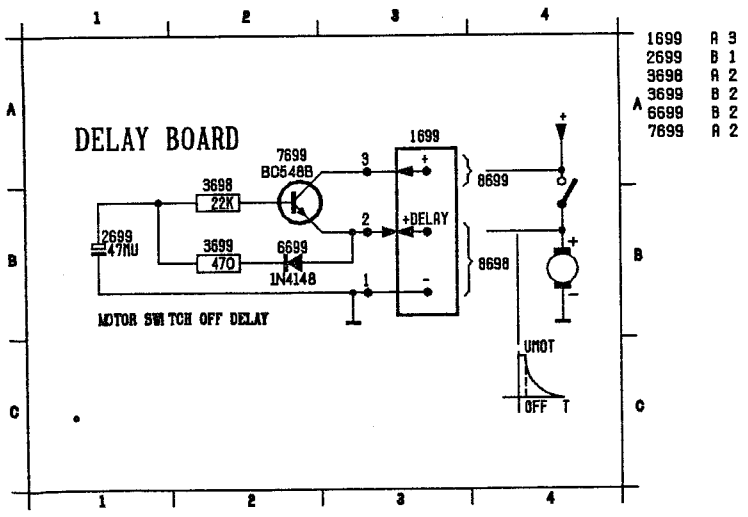
(I)

MODO REVERSE - posizione 2 del selettore 121

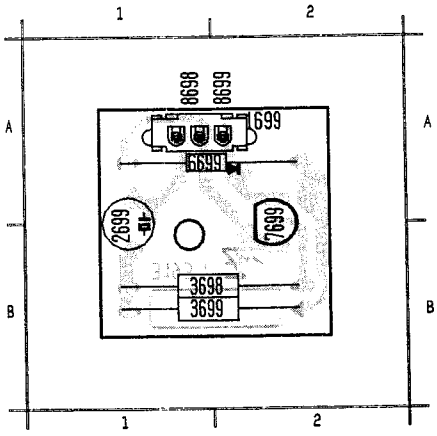
"FF" o "REW": alla fine del nastro nella cassetta, l'apparecchio viene spento automaticamente ed il selettore 121 commutato nel "modo normale".

Onde assicurare allo spegnimento automatico una commutazione affidabile del selettore è necessario che il volano dopo lo spegnimento faccia ancora almeno 3 giri. Per tale ragione è incorporato un ritardo di arresto per il motorino.

VERSION 1

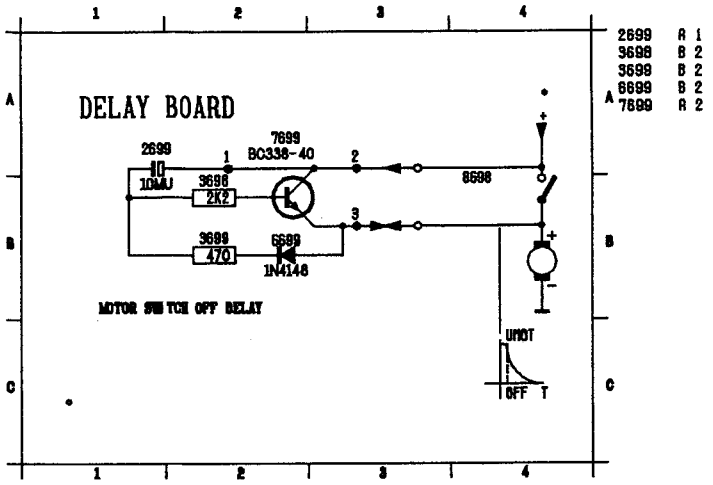


DELAY BOARD / SIDE-B VIEW /

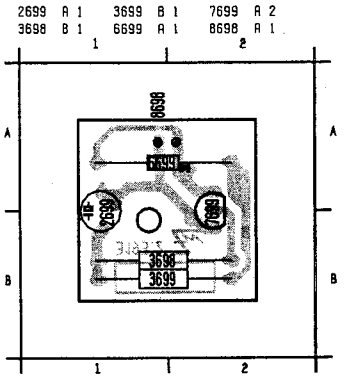


CAD-REF: PC.AS9500.P0.D1.AS9500.00.SERV-B / 90-02-27

VERSION 2



DELAY BOARD / COMPONENTSIDE VIEW / AS9500

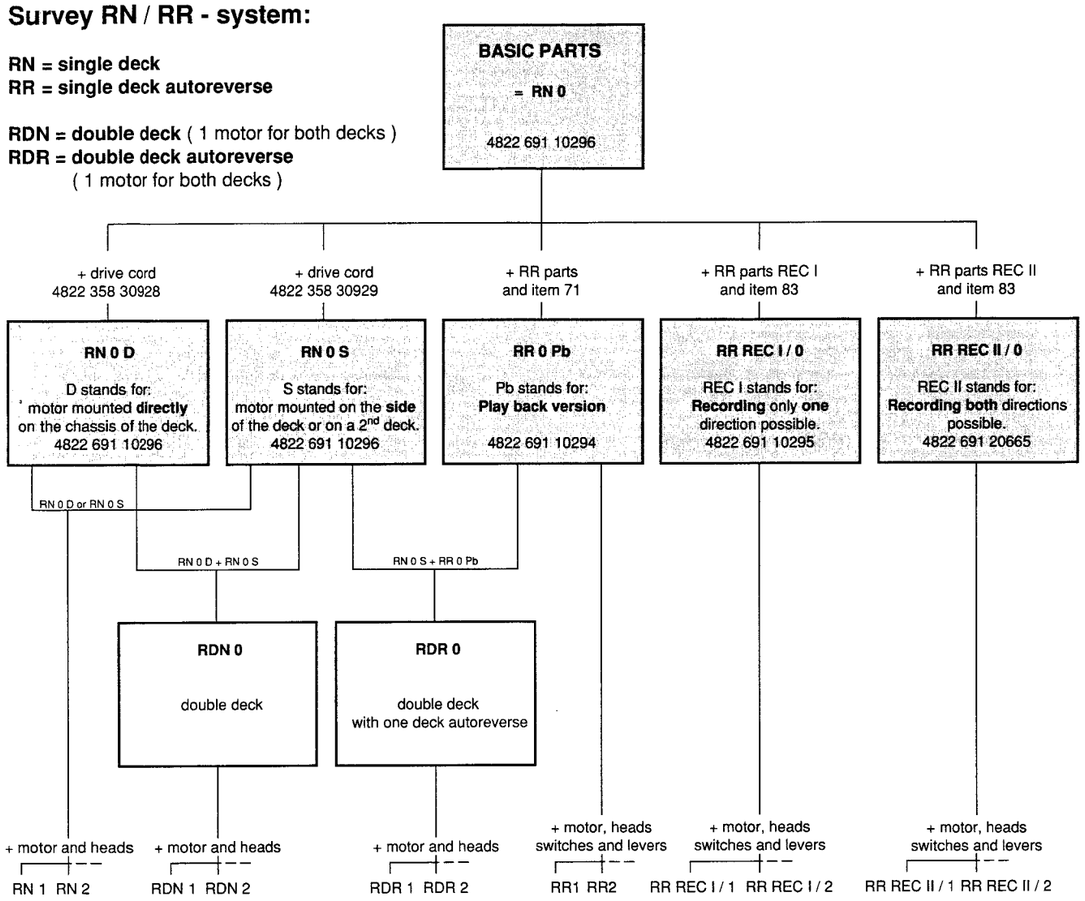


CAD-REF: PC.AS9500.P0.02.AS9500.00.SERV-B / 90-04-12

Survey RN / RR - system:

RN = single deck
RR = single deck autoreverse

RDN = double deck (1 motor for both decks)
RDR = double deck autoreverse
(1 motor for both decks)


BASIC PARTS
= RN 0
4822 691 10296
+ drive cord 4822 358 30928
+ drive cord 4822 358 30929
+ RR parts and item 71
+ RR parts REC I and item 83
+ RR parts REC II and item 83
RN 0 D
D stands for: motor mounted directly on the chassis of the deck. 4822 691 10296
RN 0 S
S stands for: motor mounted on the side of the deck or on a 2nd deck. 4822 691 10296
RR 0 Pb
Pb stands for: Play back version
4822 691 10294
RR REC I / 0
REC I stands for: Recording only one direction possible. 4822 691 10295
RR REC II / 0
REC II stands for: Recording both directions possible. 4822 691 20665
RN 0 D or RN 0 S
RN 0 D + RN 0 S
RN 0 S + RR 0 Pb
RDN 0
double deck
RDR 0
double deck with one deck autoreverse
+ motor and heads
+ motor and heads
+ motor and heads
+ motor, heads switches and levers
+ motor, heads switches and levers
+ motor, heads switches and levers
RN 1 RN 2
RDN 1 RDN 2
RDR 1 RDR 2
RR1 RR2
RR REC I / 1 RR REC I / 2
RR REC II / 1 RR REC II / 2

☐ described in this general manual
for the various types of tape transports see separate manuals

(GB)

Version 0 stands for deck without motor and heads.The various motors and heads give the various versions of tapetransports.
For codenumbers of motors and heads see separate manual of the corresponding tapetransport – version.

(F)

La version 0 correspond á une mécanique sans moteur ni têtes. Ce sont eu fait les differents moteurs et têtes qui sont de terminauts pour le n° que porte une ceztaine version d'une mécanique.
Veuillez vous reporter á la Documentation traitant d'un version précise en matiére de codes des mouteurs et des têtes.

(NL)

Versie 0 staat voor een loopwerk zonder motor en magneetkoppen. Der vershillende motors en koppen bepalen der verschillende loopwerkversies.
De codenummers van de motors en koppen zijn vermeld in de documentatie van de betreffende loopwerkversie.

(D)

Version 0 steht für : Laufwerk ohne Motor und Köpfe. Die verschiedenen Motoren und Köpfe bestimmen die verschiedenen Versionen der Laufwerke.
Die Codenummern der Motoren und Köpfe entnehmen Sie bitte der Dokumentation der betreffenden Version.

(I)

La versione 0 corrisponde ad un meccanismo privo di motore e testine. Infatti sono i motori e le testine che determinano il número di codice di una certa versione di un meccanismo.
Per quanto concerne i codici per motori e testine, riferirsi alla Documentazione de Servizio della versione precisa di cui si tratta.

SERVICE HINTS

(GB) **DISMANTLING**

- **Removal of the pressure roller 40+41 (76+73)**
  Press locklug of headsupport aside and pull up lever 40 (73).
- **Removal of take up clutch 402**
  Press locklugs apart (e.g.with a small pair of tweezers) and pull up 402.

ADJUSTMENTS and CHECKS

- Check of **pressure roller force** against capstan:
  The force of the pressure roller against the capstan should be 240 ± 30 p.
  Measuring method:
  Pb mode with arbitrary cassette. Push the pressure roller with a spring pressure gauge (4822 395 80028) away from the capstan – see fig.2
  Read force just in that moment when tape travel stops.
  This pressure cannot be adjusted!
- **Take up clutch 402**
  The torque can be measured with friction test cassette 4822 395 30054 in play mode.
  Requirement:
  take up torque: 40 – 65 pcm
  (permissible variation 5 pcm)
  supplying reel: 2 – 4 pcm
- **FF/REW torque**
  Use friction testcassette 4822 395 30054
  FF– or Rew – mode
  Stop supplying reel by hand and read friction force – requirement: 55 – 90 pcm
- Check of **tape travel and capstan adjustment:**
  Use mirror cassette 4822 395 30058 in play mode.
  If the tape moves up or down at the capstan the capstan has to be adjusted perpendicularly with the flywheel bearing 5.
  The tape should travel straight and smoothly between the tapeguides and along the capstan.Small deviations in this pattern are permissible since their effect is negligible with a normal cassette.

  Attention: In case of a reverse deck it is important to check tape travel in both directions after adjustment of the azimuth of the Rec./Pb – head ---- repeat if necessary.

  For **adjustment of the azimuth** of the Rec./Pb – head and the **tape speed** refer to the concerning service manual of the set.

(NL) SERVICE–HINTS

DEMONTAGE

- **Verwijderen van aandrukrol 40+41 (76+73)**
  Duw de vergrendellip van de kopsteun opzij en trek hefboom 40 (73) omhoog.
- **Verwijderen van opwikkelkoppeling 402**
  Duw de vergrendellippen opzij (bijvoorbeeld met een klein pincet) en trek de koppeling 402 omhoog.

AFSTELLINGEN en CONTROLES

- Controleren van de kracht **van de aandrukrol** tegen de kaapstander:
  De druk van de aandrukrol tegen de kaapstander moet zijn 240 ± 30p.
  Meetmethode:
  Plaats een willekeurige cassette en druk de weergavetoets in. Trek de aandrukrol met een veerdrukmeter (4822 395 80028) weg van de kaapstander – zie afbeelding 2.
  Lees de waarde af precies op het moment dat de band stopt.
  Deze druk kan niet worden bijgeregeld.
- **Opwikkelkoppeling 402**
  Het koppel kan worden gemeten met behulp van de frictietestcassette 4822 395 30054 in de weergavestand.
  Eis:
  opwikkelkoppel: 40 – 65 pcm
  (toegestane afwijking 5 pcm)
  afwikkelspoel: 2 – 4 pcm
- **koppel bij vooruit–/terugspoelen**
  Gebruik frictietestcassette 4822 395 30054 in de stand vooruitspoelen of terugspoelen.
  Houd de afwikkelspoel met de hand stil en lees de wrijvingskracht af – eis: 55 – 90 pcm.
- Controleren van **bandtransport en kaapstander–instelling:**
  Gebruik spiegelcassette 4822 395 30058 in de stand weergeven.
  Als de band bij de kaapstander op en neer gaat, moet de kaapstander verticaal worden bijgesteld met behulp van vliegwiellager 5.
  De band moet recht en soepel tussen de bandgeleiders langs de kaapstander lopen. Kleine afwijkingen in dit patroon zijn toelaatbaar omdat het effect ervan bij een normale cassette te verwaarlozen is.

  Aandacht: In geval van een deck dat zowel kan opnemen als weergeven, is het belangrijk om na de azimuthinstelling van de opname–/weergavekop het bandtransport in beide richtingen te controleren.
  Indien nodig de instelling herhalen.
  Voor **de azimuthinstelling** van de weergave–/opnamekop en de **bandsnelheid** gelieve u de servicehandleiding van het betreffende apparaat te raadplegen.

(F) CONSEILS D'ENTRETIEN

DEMONTAGE

Démontage du galet presseur 40+41 (76+73) Poussez sur le côté la patte de serrage du support de la tête de lecture et remontez le levier 40 (73).

Démontage de la griffe enrouleuse 402
Poussez à l'écart les pattes de serrage (par exemple avec des pincettes) et tirez la griffe 402 vers le haut.

dans les ateliers.

REGLAGES ET VERIFICATIONS

- Vérification de **la pression des galets presseurs** contre le cabestan :
  La pression exercée contre le cabestan doit être de 240 ± 30 p.
  Méthode de mesure :
  En mode lecture avec une cassette arbitraire.

Eloignez du cabestan le galet presseur avec un manomètre à ressorts (4822 395 80028)– Fig.2 Lisez la pression au moment où la bande cesse de défiler. Cette pression ne peut pas être réglée !

- **Griffe enrouleuse 402**
  Le moment de torsion peut être mesuré à l'aide de la cassette de test à friction 4822 395 30054 en mode lecture.
  Condition requise :
  Moment de torsion de l'enrouleuse : 40–65 MIC
  Variation autorisée : 5 MIC
  Bobine débitrice : 2 – 4 MIC

- **Moment de torsion FF/REW (bobinage rapide/rebobinage)**
  Utilisez la cassette de test à friction 4822 395 30054
  Mode bobinage rapide ou rebobinage.
  Arrêtez la bobine débitrice à la main et lisez la force de friction: 55 – 90 MIC exigés

- Contrôle du **défilement de bande et du réglage du cabestan** :
  Utilisez la cassette à miroir 4822 395 30058 en mode lecture Si la bande se déplace vers le haut ou vers le bas du cabestan, vous devez ajuster le cabestan perpendiculairement avec le palier 5 du volant.
  La bande doit défiler en ligne droite et doucement entre les guides de bande. De faibles déviations de ce modèle sont autorisées car leur effet est négligeable avec une cassette conven– tionnelle.

  Attention :
  Dans le cas d'une platine cassette à inversion de défilement, il est très important de vérifier le défilement de bande dans les deux sens après le réglage de l'azimut de la tête de lecture/enregistrement.
  Répétez cette opération si nécessaire.

  Pour **le réglage de l'azimut** de la tête de lecture/enregistrement et **la vitesse de bande,** reportez–vous au manuel d'entretien correspondant.

(D) AUSBAU

- **Andruckrolle 40+41 (76+73) entfernen:**
  Sperrzunge der Kopfträgerplatte zur Seite drücken und Hebel 40 (73) hochziehen.

- **Aufwickelkupplung 402 entfernen:**
  Rasthaken auseinanderdrücken (z.B. mit spitzer Pinzette) und gleichzeitig 402 hochziehen.

EINSTELLUNGEN und KONTROLLEN

- Kontrolle des **Anpreßrollendruckes**
  Der Druck der Anpreßrolle 41 (76) an die Tonachse soll 240 ± 30 p betragen.
  Meßmethode: Stellung "play" mit beliebiger Kassette.Anpreßrolle mit einer Federwaage (4822 395 80028) – Ansetzpunkt siehe Fig. 2 – von der Tonachse wegdrücken. Lesen Sie die Kraft in dem Moment ab,wenn der Bandtransport stoppt.
  Dieser Druck kann nicht eingestellt werden!

- **Aufwickelrutschkupplung 402**
  Das Aufwickelmoment wird mit der Meßkassette 4822 395 30054 in Stellung "play" gemessen.
  Anforderung:
  Aufwickelmoment: 40 – 65 pcm
  (zulässige Schwankung 5 pcm)
  Gegenzug: 2 – 4 pcm

- **FF / REW - Moment**
  Stellung "FF" bzw. "REW"
  Meßkassette 4822 395 30054 verwenden.

Jeweiligen Abwickelteller mit der Hand blockieren und Moment ablesen.
Anforderung: 50 – 90 pcm

- Kontrolle des **Bandlaufs** und der **Tonwelleneinstellung:**
  Verwenden Sie Spiegelkassette 4822 395 30058 in Stellung "play".
  Wenn sich das Band an der Tonwelle nach oben oder unten bewegt,muß die Tonwelle mit dem Exzenterlager 5 senkrecht gestellt werden.
  Das Band soll gerade und genau fluchtend zwischen den Bandführungen der Köpfe und an der Tonwelle entlang laufen.Geringe Abweichungen in diesem Bild sind zulässig, da sie bei einer normalen Kassette nicht beeinträchtigend wirken.

  Achtung: Bei Reverse – Laufwerken ist es wichtig,nach Einstellung des Azimuths den Bandlauf in beiden Richtungen zu kontrollieren ------ falls notwendig, wiederholen.
  Für Einstellung des **Azimuths** des REC/Pb –Kopfes und der **Bandgeschwindigkeit** siehe Servicedokumentation des betreffenden Gerätes.

(I) CONSIGLI DI SERVIZIO ASSISTENZA

SMONTAGGIO

- **Smontaggio del rullino pressanastro 50+41 (76+73)**
  Spingere la linguetta di bloccaggio del supporto delle testine lateralmente e tirare in alto la leva 40 (73).

- **Smontaggio dell'accoppiamento di avvolgimento 402**
  Spingere le linguette di bloccaggio lateralmente (p.e. con una piccola pinza) e tirare in alto l'accoppiamento 402.

REGISTRAZIONI e CONTROLLI

- Controllo della **forza del rullino pressanastro** contro il rullino trainonastro:
  La forza del rullino pressanastro contro il rullino trainonastro deve essere di 240 ± 30 p.

  Metodo di misurazione:
  Inserire una qualsiasi cassetta e premere il tasto di riproduzione. Allontanare il rullino pressanastro con un misuratore della pressione elicoidale (4822 395 80028) dal rullino trainonastro (fig. 2).
  Leggere il valore proprio al momento che il nastro si arresta.
  Non è possibile correggere questa pressione!

- **Accoppiamento di avvolgimento 402**
  La coppia può essere misurata con l'aiuto della cassetta di controllo della frizione 4822 395 30054 nel modo di riproduzione.
  Valori prescritti:
  Coppia di avvolgimento: 40–65 pcm.
  (tolleranza: 5 pcm)
  Bobina di svolgimento : 2–4 pcm.

- **Coppia di avvolgimento/riavvolgimento**
  Servirsi della cassetta di controllo della frizione 4822 395 30054 nel modo di avvolgimento o riavvolgimento.
  Bloccare con la mano la rotazione della bobina di svolgimento e leggere la forza di frizione.
  Valore prescritto: 55–90 pcm.

- Controllo della regolazione del **trasporto del nastro e** del rullino trainonastro

  Servirsi della cassetta a specchio 4822 395 30058 nel modo di riproduzione.
  Se il nastro si sposta in alto ed in basso dalla parte del rullino trainonastro, registrare il rullino trainonastro in senso verticale con l'aiuto del cuscinetto del volano 5.
  Il nastro deve passare ben diritto ed agevolmente tra le guide del nastro lungo il rullino trainonastro. Sono consentite piccole deviazioni dato che il loro effetto è trascurabile con l'uso di una cassetta normale.

  Attenzione: in caso l'apparecchio permetta sia la registrazione che la riproduzione, a registrazione avvenuta dell'azimut della testina di registrazione/riproduzione è importante controllare il trasporto del nastro nei due sensi. Se necessario, ripetere la registrazione.
  Per la **registrazione dell'azimut** della testina di registrazione/riproduzione e la **velocità di trasporto del nastro**, consultare il manuale di servizio assistenza dell'apparecchio in questione.

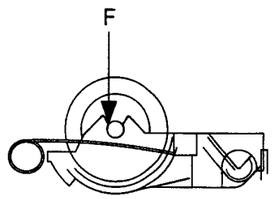
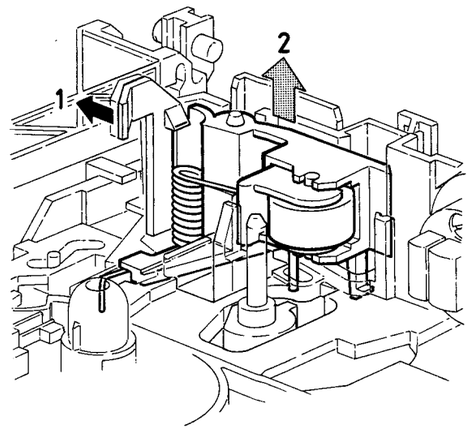


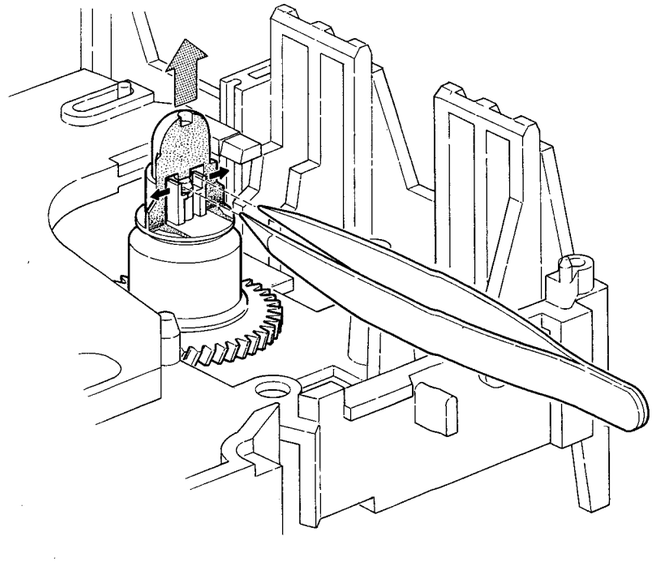
FIG 2

MDA.00429
T07/646

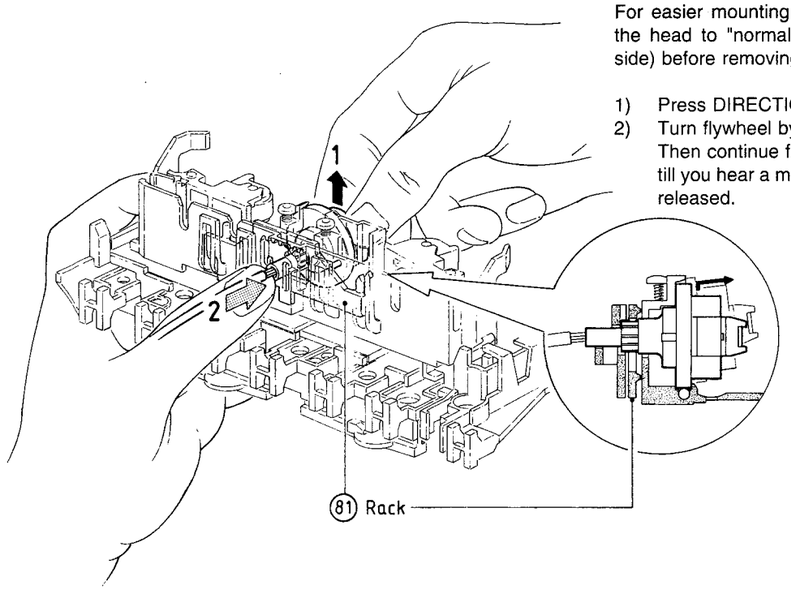
REMOVAL OF PINCH ROLLER



REMOVAL OF CARRIER (9), (20)



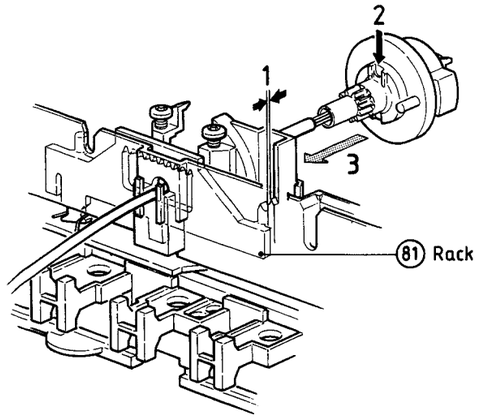
REMOVAL OF ROTATION HEAD



For easier mounting of the rotation head afterwards, turn the head to "normal direction" (tape guiding on the right side) before removing:

1) Press DIRECTION - key once.
2) Turn flywheel by hand as long as head turns around. Then continue for about half a rotation of the flywheel till you hear a mechanical click. Now the mechanism is released.

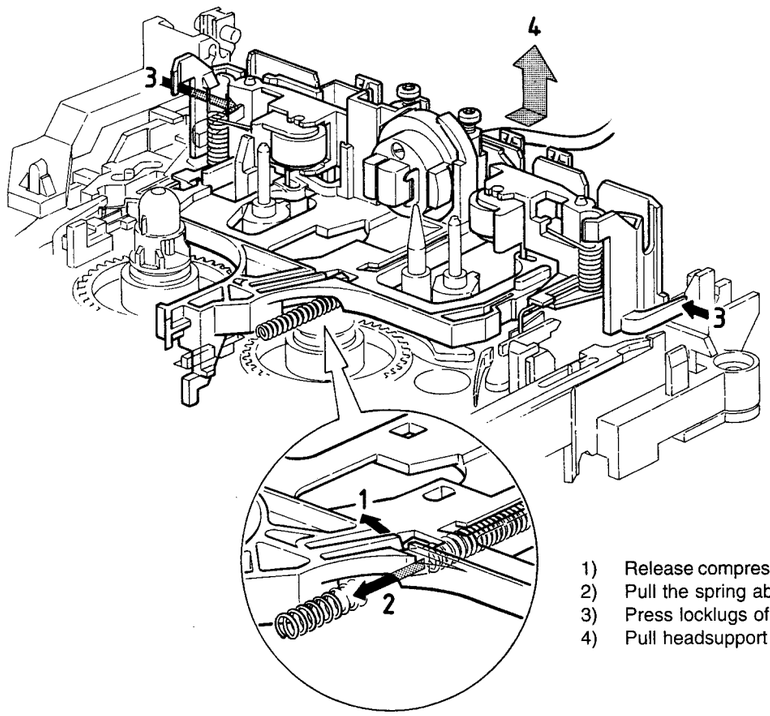
MOUNTING OF ROTATION HEAD



Rack pos.81 has to be aligned before mounting the rotation head:

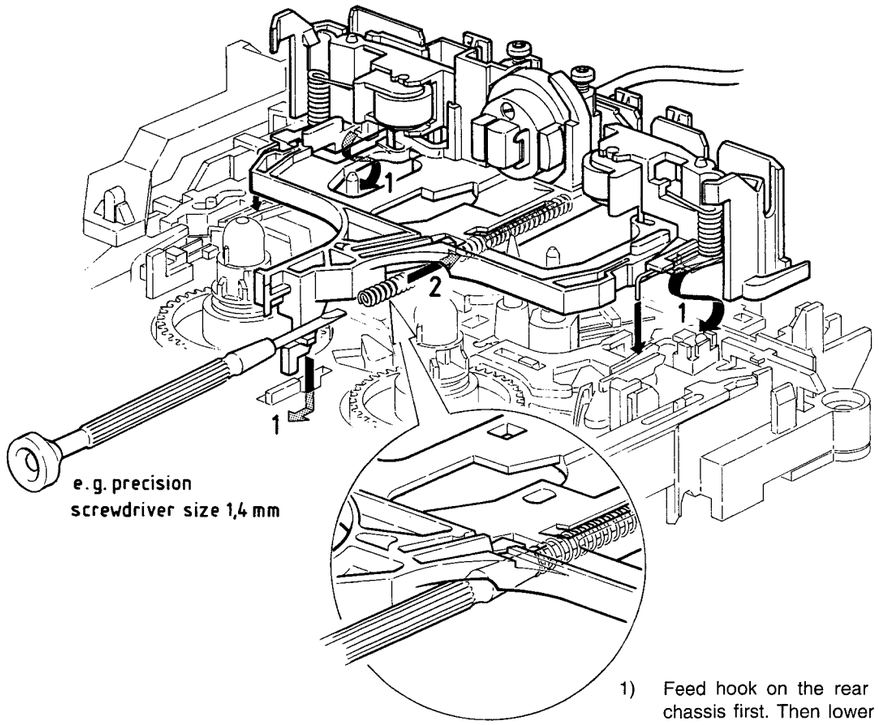
1) Press DIRECTION - key once.
   Turn flywheel by hand as long as the alignment pin of rack pos.81 is in line with the alignment marking on the headsupport --> see sketch.
2) Hold the head in normal (horizontal) position - marking on the head is on top.
3) Snap head into headsupport.
   remark: If you follow the above instruction the teeth of the gear will fit together.
4) Change the direction as described under "removal of rotation head" and check if the rotation head turns to the correct position.
   If the head is not in horizontal position repeat and take care of exact alignment of rack pos.81 and horizontal position of the head while mounting.

REMOVAL OF HEADSUPPORT



1) Release compression spring by pressing locklug aside.
2) Pull the spring about half of the spring length out.
3) Press locklugs of the headsupport aside.
4) Pull headsupport in direction to the keys and lift it.

MOUNTING OF HEADSUPPORT

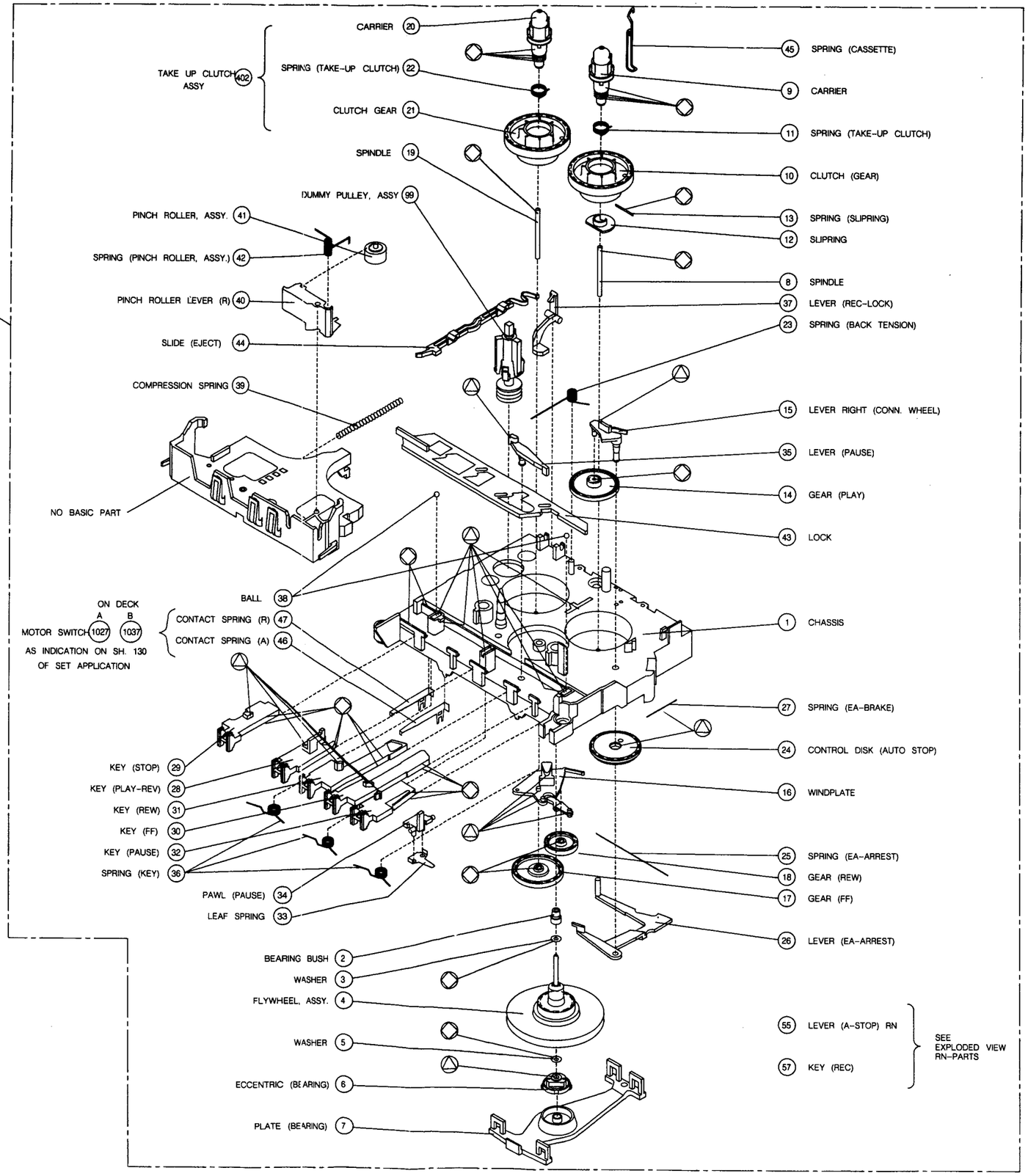


1) Feed hook on the rear of the headsupport into the chassis first. Then lower the front part to the chassis and press headsupport towards back until locklugs snap in.
   Attention: In case of a reverse deck take care of fitting the pinch roller pressing springs correctly into the guiding slots of the chassis.

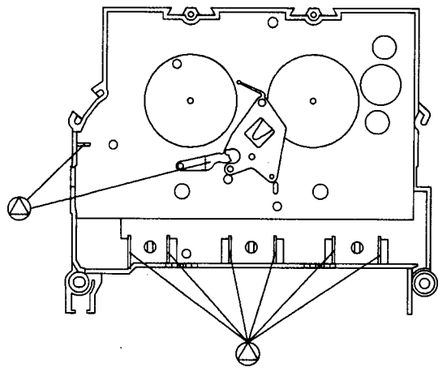
2) Use a little screwdriver as a guiding and compress compression spring until locklug arrests.

BASIC PARTS
RN/RR-TAPE DECK

RN0 (401)



BOTTOM VIEW OF CHASSIS WINDPLATE



LUBRICANT (MOBIL SHC 634) tem No. 48

GREASE (SHELL ALVANIA RS) tem No. 49

HANNOSIL-RELEASE AGENT M tem No. 50

FOR SERVICE NO LUBRICATION IS NECESSARY EXCEPT PART WILL BE RENEWED

7	4822 520 10718	plate bearing
40	4822 402 10037	lever pinchroller right
41	4822 528 70646	pinch roller
43	4822 404 10853	slide, key locking
401	4822 691 10296	RN 0 assy
402	4822 528 20676	take up clutch assy

Only those parts of which a service code number is stated are service parts.

SUMMARY OF SERVICE CODE NUMBERS

RN - TAPE TRANSPORTS

	RN 1	*RN 2*	*RN 3*	*RN 4*	*RN 5*	*RN 6*	*RN 7*			
Motor MMI-6H2LWKR 4822 361 21323	x	x		x		x	x			
Motor MMI-6H2LWDR 4822 361 21298										
Motor MMI-6H9LWDR 4822 361 21285										
Motor MMI-6S9LR 4822 361 21425			x							
Motor MMI-6S9LRK 4822 361 21446					x					
Head erase 4822 249 20072	x	x	x	x	x					
Head dummy 4822 443 61616 4822 404 10685						x	x			
Head Rec/Pb 4822 249 10334	x		x		x					
Head Rec/Pb 4822 249 10397		x		x		x	x			
Damper, Motor (S) 4822 529 10193	x									
Damper, Motor (D) 4822 529 10254		x	x	x	x	x	x			
Screw, Motor (S) 4822 502 30441	x									
Screw, Motor (D) 4822 502 11866		x	x	x	x	x	x			
Support, Motor (S) 4822 403 53996	x									
Switch, Indicat."PLAY" 4822 271 30598	x	x		x		x	x			
Switch, "RECORD" 4822 278 90624		x		x						

GENERAL PARTS RN - TAPE TRANSPORTS

7/67	4822 520 10718	bearing plate
38	4822 520 40134	ball, bearing
40	4822 402 10037	lever, pinch roller right
41/76	4822 528 70646	pinch roller
43	4822 404 10853	slide, key lock
58	4822 358 30929	drive belt RN0 S (long)
98	4822 358 30928	drive belt RN0 D (short)
101/126	4822 492 51473	spring azimuth
401	4822 691 10296	RN0 assy
402	4822 528 20676	take-up clutch assy

SUMMARY OF SERVICE CODE NUMBERS

RDN - TAPE TRANSPORTS

	RDN 1	*RDN 2*	*RDN 3*	*RDN 4*	*RDN 5*	*RDN 6*	*RDN 7*	*RDN 8*	*RDN 9*	*RDN 10*
Motor MMI-6H2LWKR 4822 361 21323										
Motor MMI-6H2LWDR 4822 361 21298		x		x				x		x
Motor MMI-6H9LWDR 4822 361 21285	x		x		x	x	x		x	
Motor MMI-6S9LR 4822 361 21425										
Motor MMI-6S9LRK 4822 361 21446										
Head erase 4822 249 20072	x	x	x	x	x	x	x	x	x	x
Head dummy 4822 443 61616 4822 404 10685	x	x	x	x	x	x	x	x	x	x
Head Rec/Pb 4822 249 10334	x	x	x	x	x	x				
Head Rec/Pb 4822 249 10397							x	x	x	x
Damper, Motor (S) 4822 529 10193										
Damper, Motor (D) 4822 529 10254	x	x	x	x	x	x	x	x	x	x
Screw, Motor (S) 4822 502 30441										
Screw, Motor (D) 4822 502 11866	x	x	x	x	x	x	x	x	x	x
Support, Motor (S) 4822 403 53996										
Switch, Indicat."PLAY" 4822 271 30598	x			x	x		xx	xx		x
Switch, "RECORD" 4822 278 90624							x	x		x

GENERAL PARTS RDN - TAPE TRANSPORTS

7/67	4822 520 10718	bearing plate
38	4822 520 40134	ball, bearing
40	4822 402 10037	lever, pinch roller right
41/76	4822 528 70646	pinch roller
43	4822 404 10853	slide, key lock
58	4822 358 30929	drive belt RN0 S (long)
98	4822 358 30928	drive belt RN0 D (short)
101/126	4822 492 51473	spring azimuth
401	4822 691 10296	RN0 assy
402	4822 528 20676	take-up clutch assy

SUMMARY OF SERVICE CODE NUMBERS

RR / RDR - REVERSE TAPE TRANSPORTS

	RR 1	*RR 2*	*RR 3*	*RDR 1*	*RDR 2*	*RDR 3*	*RDR 4*	*RDR 5*	*RDR 6*	*RDR 7*	*RDR 9*
Motor MMI-6H2LWKR 4822 361 21323	x	x	x								
Motor MMI-6H2LWDR 4822 361 21298						x	x				
Motor MMI-6H9LWDR 4822 361 21285				x	x			x	x	x	x
Motor MMI-6S9LR 4822 361 21425											
Motor MMI-6S9LRK 4822 361 21446											
Head erase 4822 249 20072				x	x	x	x	x	x	x	x
Head Rec/Pb 4822 249 10334				x	x	x		x	x	x	
Head Rec/Pb 4822 249 10397							x				x
Head (reverse deck) 4822 249 30153	x			x	x	x		x	x	x	
Head (reverse deck) 4822 249 30156		x	x				x				x
Damper, Motor (D) 4822 529 10254	x	x	x	x	x	x	x	x	x	x	x
Screw, Motor (D) 4822 502 11866	x	x	x	x	x	x	x	x	x	x	x
Switch, Indicat."PLAY" 4822 271 30598	x	x	x	x	x	x	xx	x	x	x	x
Switch, "RECORD" 4822 278 90624							x				

GENERAL PARTS RR / RDR - REVERSE TAPE TRANSPORTS

7/67	4822 520 10718	bearing plate
38/61	4822 520 10134	ball, bearing
40	4822 402 10037	lever, pinch roller right
41/76	4822 528 70646	pinch roller
43	4822 404 10853	slide, key lock
58	4822 358 30929	drive belt RN0 S (long)
73	4822 402 10038	lever, pinch roller left
74	4822 535 92992	tape guide right
75	4822 535 92993	tape guide left
98	4822 358 30928	drive belt RN0 D (short)
101/126	4822 492 51473	spring azimuth
106	4822 403 70385	lever, antiselect (WT02 onwards)
111	4822 492 70393	head clip
121	4822 403 53876	lever, mode select
401	4822 691 10296	RN0 assy
402	4822 528 20676	take-up clutch assy
403	4822 691 10294	RR0 Pb assy
1025	4822 278 90624	switch, direction indication

SUMMARY OF SERVICE CODE NUMBERS

RR RECording - REVERSE TAPE TRANSPORTS

	RR-RECI/ 1		*RR-RECII/1*	*RR-RECII/2*	*RR-RECII/3*			
Motor MMI-6H2LWKR 4822 361 21323								
Motor MMI-6H2LWDR 4822 361 21298								
Motor MMI-6H9LWDR 4822 361 21285								
Motor MMI-6S9LR 4822 361 21425	x		x					
Motor MMI-6S9LRK 4822 361 21446				x	x			
Combi Head rotation 4822 249 10434	x		x	x	x			
Damper, Motor (D) 4822 529 10254	x		x	x	x			
Screw, Motor (D) 4822 502 11866	x		x	x	x			
Switch, Indicat."PLAY" 4822 271 30598								
Switch, "RECORD" 4822 278 90624								
Lever, mode select 4822 403 70386			x	x	x			

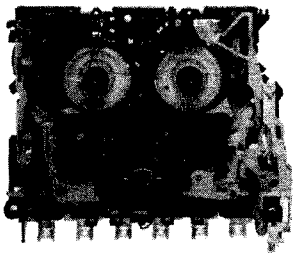
GENERAL PARTS RR REC - REVERSE TAPE TRANSPORTS

7/67	4822 520 10718	bearing plate
38/61/212	4822 520 40134	ball, bearing
40	4822 402 10037	lever, pinch roller right
41/76	4822 528 70646	pinch roller
43	4822 404 10853	slide, key lock
73	4822 402 10038	lever, pinch roller left
74	4822 535 92992	tape guide right
75	4822 535 92993	tape guide left
98	4822 358 30928	drive belt RN0 D (short)
106	4822 403 70385	lever, antiselect (WT02 onwards)
204	4822 403 70387	lever, recording protection
205	4822 520 20725	bearing, recording protection
209	4822 492 33272	spring, tension
402	4822 528 20676	take-up clutch assy
404	4822 691 10295	RR-RECI/0 assy
405	4822 691 20665	RR-RECII/0 assy
1025	4822 278 90624	switch, direction indication

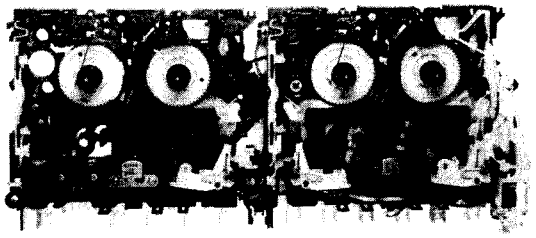
Tape transport RN/RR
RDN/RDR

General documentation

Service
Service
Service



44 993 A11



44 990 A11

Service Manual

(GB) MAINTENANCE

It is recommended to clean the recorder after approx. 500 hours of operation.

To be cleaned with alcohol or spirit

- Erase head
- Recording/playback head
- Capstan
- Pressure roller

(F) ENTRETIEN

L'appareil devra être nettoyé après env. 500 heures de marche aux points les plus importants.

Nettoyer les éléments suivants à l'alcool ou à l'alcool à brûler:

- Tête effacement
- Tête enregistrement/reproduction
- Cabestan
- Galet presseur

(NL) ONDERHOUD

Aanbevolen wordt het apparaat na ca. 500 bedrijfsuren schoon te maken

Schoonmaken met alcohol of spiritus:

- Wiskop
- Opneem-/weergeefkop
- Toonas
- Drukrol

(D) WARTUNG

Es empfiehlt sich, das Gerät nach ca. 500 Betriebsstunden zu reinigen

Reinigen mit Alkohol oder Spiritus:

- Löschkopf
- Aufnahme/Wiedergabe-Kopf
- Tonachse
- Andruckrolle

(I) MANUTENZIONE

E consigliabile pulire l'apparecchio dopo circa 500 ore di funzionamento ai punti principali.

Pulire con alcool

- Testina di cancellazione
- Testina di registrazione/riproduzione
- Capstan
- Rullo preminastro

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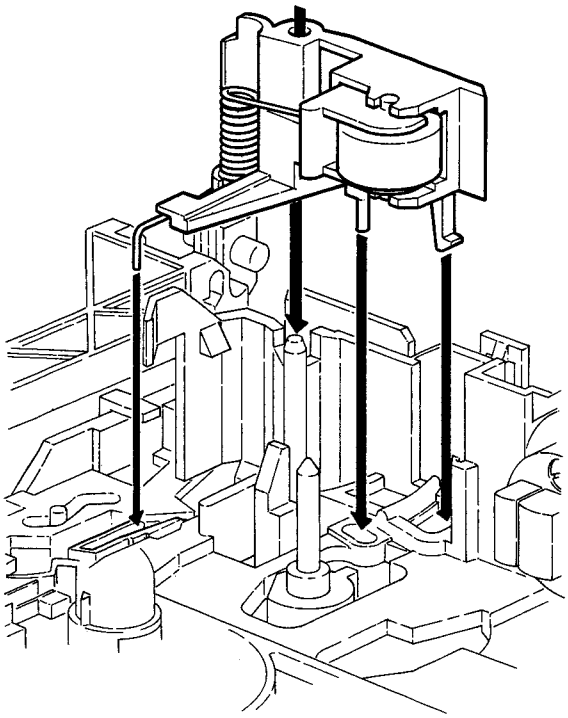
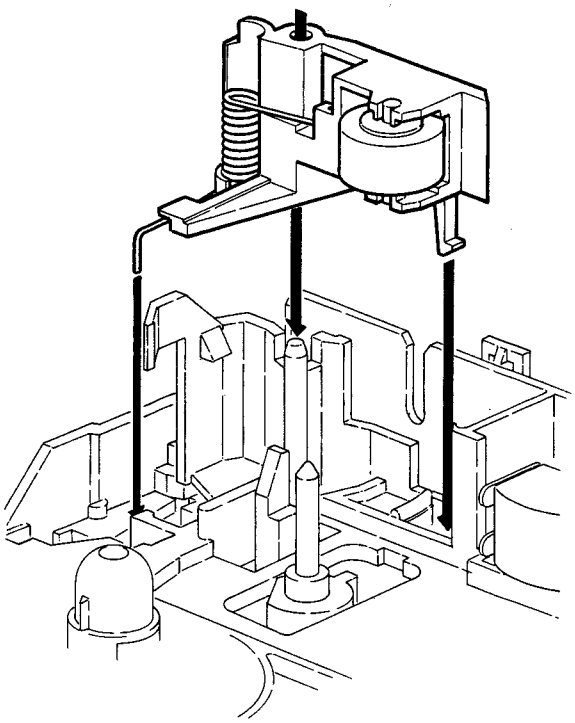
MOUNTING OF PINCH ROLLER

for autoreverse decks

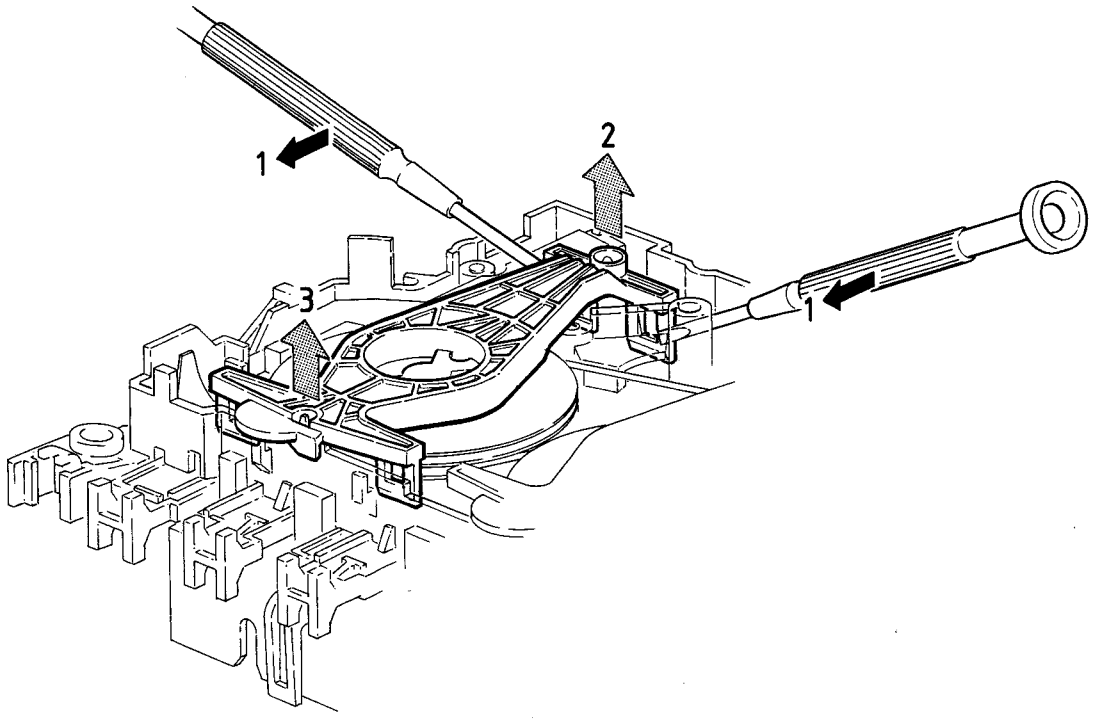


for single direction decks



REMOVAL OF BEARING PLATE ⑦ ⑥⑦

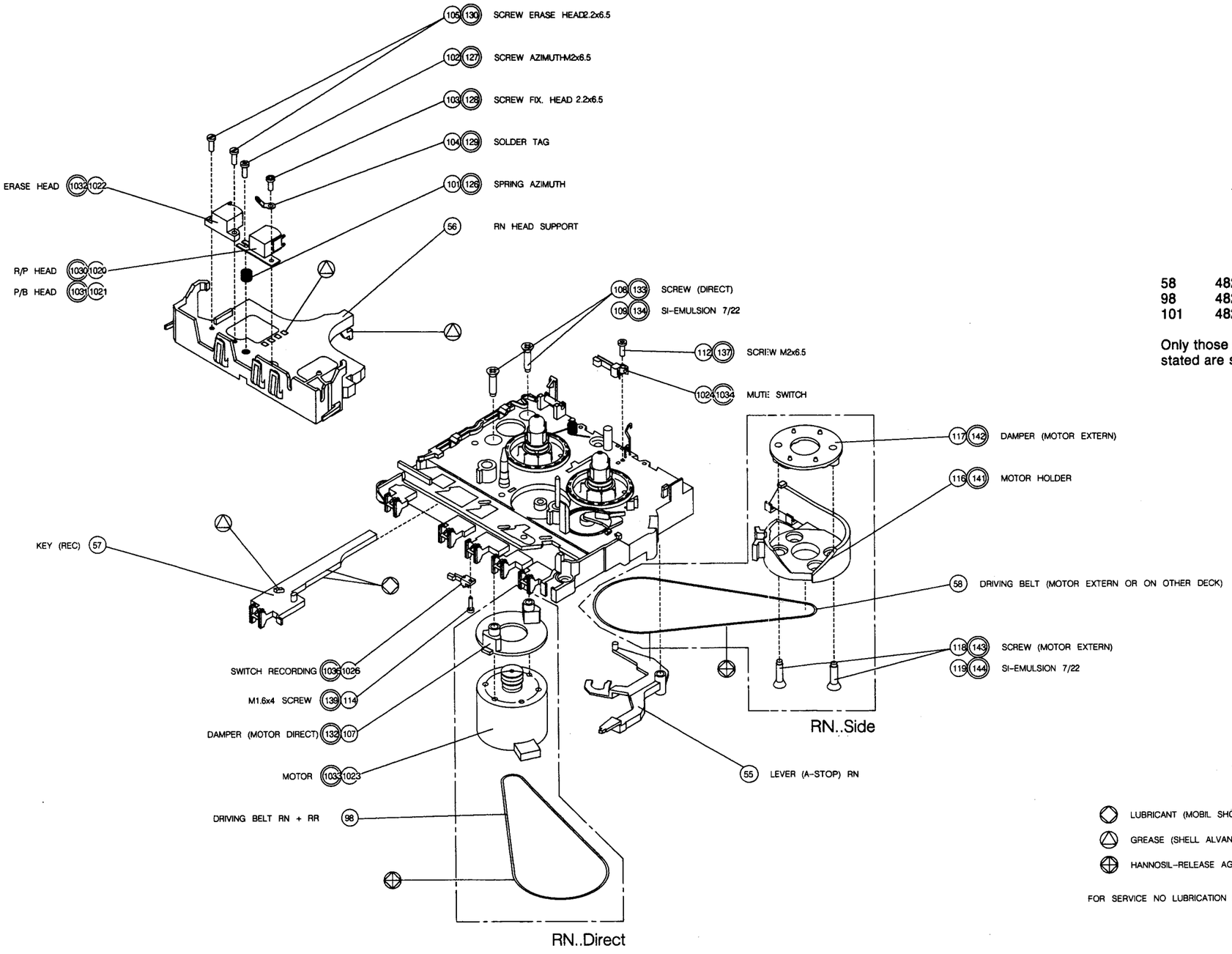
Begin rearwards as indicated



RN-PARTS
(additional to basic parts)

ITEM (100) TO (124) ON "DECK A"

ITEM (125) TO (149) ON "DECK B"


105 130 SCREW ERASE HEAD2.2x6.5
102 127 SCREW AZIMUTH-M2x6.5
103 128 SCREW FIX. HEAD 2.2x6.5
104 129 SOLDER TAG
101 126 SPRING AZIMUTH
56 RN HEAD SUPPORT
ERASE HEAD 1032 1022
R/P HEAD 1030 1020
P/B HEAD 1031 1021
106 133 SCREW (DIRECT)
109 134 SI-EMULSION 7/22
112 137 SCREW M2x6.5
1024 1034 MUTE SWITCH
117 142 DAMPER (MOTOR EXTERN)
116 141 MOTOR HOLDER
58 DRIVING BELT (MOTOR EXTERN OR ON OTHER DECK)
118 143 SCREW (MOTOR EXTERN)
119 144 SI-EMULSION 7/22
RN..Side
KEY (REC) 57
SWITCH RECORDING 1035 1026
M1.6x4 SCREW 139 114
DAMPER (MOTOR DIRECT) 132 107
MOTOR 1033 1023
DRIVING BELT RN + RR 98
55 LEVER (A-STOP) RN
RN..Direct

58	4822 358 30929	driving belt RN 0S
98	4822 358 30928	driving belt RN 0D
101	4822 492 51473	spring azimuth

Only those parts of which a service code number is stated are service parts.

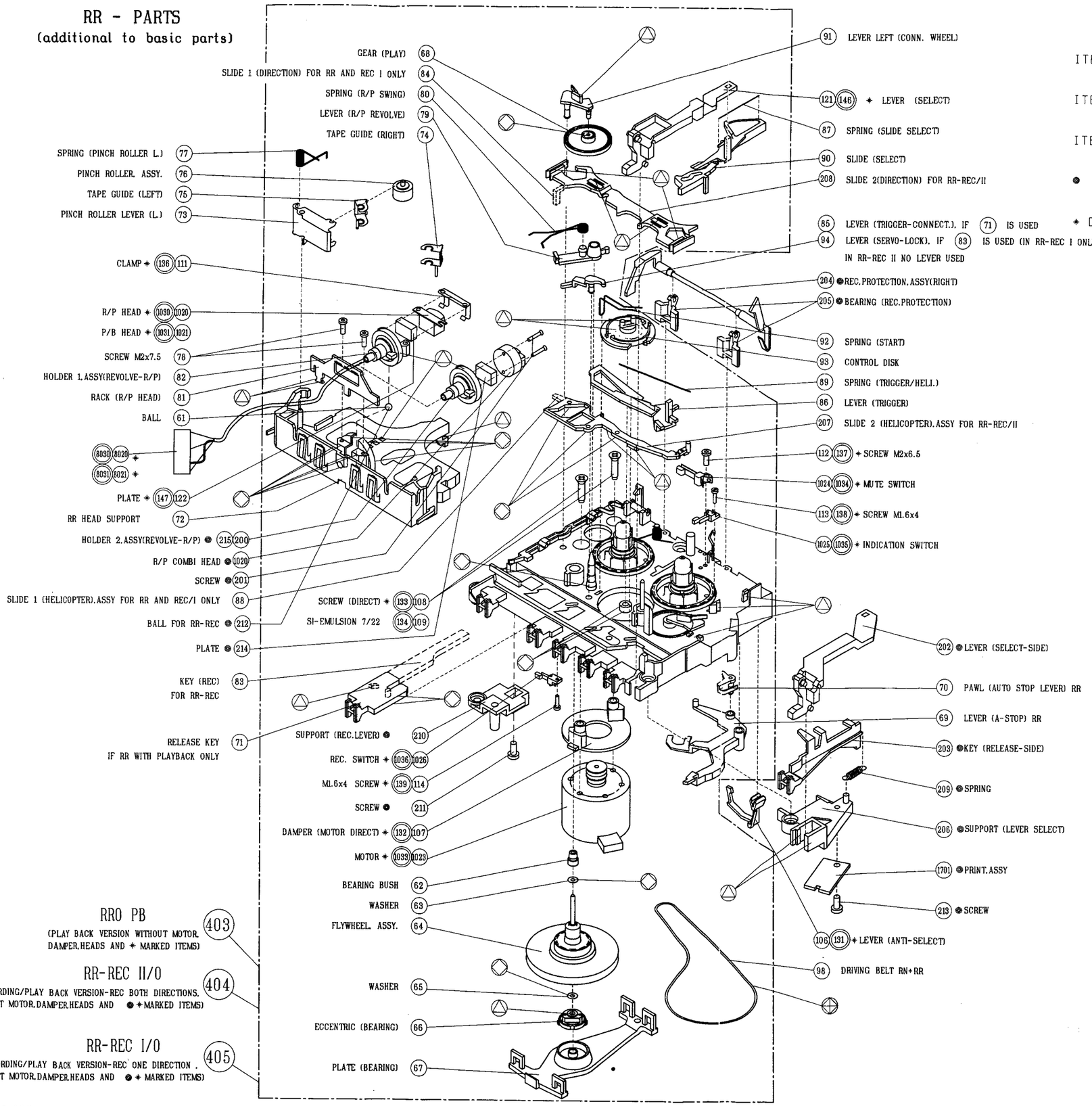
LUBRICANT (MOBIL SHC 634) term No. 48

GREASE (SHELL ALVANIA RS) term No. 49

HANNOSIL-RELEASE AGENT M term No. 50

FOR SERVICE NO LUBRICATION IS NECESSARY EXCEPT PART WILL BE RENEWED

RR - PARTS
(additional to basic parts)


GEAR (PLAY) 68
SLIDE 1 (DIRECTION) FOR RR AND REC I ONLY 84
SPRING (R/P SWING) 80
LEVER (R/P REVOLVE) 79
TAPE GUIDE (RIGHT) 74
SPRING (PINCH ROLLER L.) 77
PINCH ROLLER. ASSY. 76
TAPE GUIDE (LEFT) 75
PINCH ROLLER LEVER (L.) 73
CLAMP * 136 111
R/P HEAD * 1030 1020
P/B HEAD * 1031 1021
SCREW M2x7.5 78
HOLDER 1.ASSY(REVOLVE-R/P) 82
RACK (R/P HEAD) 81
BALL 61
8030 8020 *
8031 8021 *
PLATE * 147 122
RR HEAD SUPPORT 72
HOLDER 2.ASSY(REVOLVE-R/P) ● 215 200
R/P COMBI HEAD ● 1020
SCREW ● 201
SLIDE 1 (HELICOPTER).ASSY FOR RR AND REC/I ONLY 88
BALL FOR RR-REC ● 212
PLATE ● 214
KEY (REC) FOR RR-REC 83
RELEASE KEY IF RR WITH PLAYBACK ONLY 71
SCREW (DIRECT) * 133 108
SI-EMULSION 7/22 134 109
SUPPORT (REC.LEVER) ● 210
REC. SWITCH * 1036 1026
M1.6x4 SCREW * 139 114
SCREW ● 211
DAMPER (MOTOR DIRECT) * 132 107
MOTOR * 1033 1023
BEARING BUSH 62
WASHER 63
FLYWHEEL. ASSY. 64
WASHER 65
ECCENTRIC (BEARING) 66
PLATE (BEARING) 67
91 LEVER LEFT (CONN. WHEEL)
121 146 * LEVER (SELECT)
87 SPRING (SLIDE SELECT)
90 SLIDE (SELECT)
208 SLIDE 2(DIRECTION) FOR RR-REC/II
85 LEVER (TRIGGER-CONNECT.). IF 71 IS USED
94 LEVER (SERVO-LOCK). IF 83 IS USED (IN RR-REC I ONLY)
IN RR-REC II NO LEVER USED
204 ● REC.PROTECTION.ASSY(RIGHT)
205 ● BEARING (REC.PROTECTION)
92 SPRING (START)
93 CONTROL DISK
89 SPRING (TRIGGER/HELI.)
86 LEVER (TRIGGER)
207 SLIDE 2 (HELICOPTER).ASSY FOR RR-REC/II
112 137 * SCREW M2x6.5
1024 1034 * MUTE SWITCH
113 138 * SCREW M1.6x4
1025 1035 * INDICATION SWITCH
202 ● LEVER (SELECT-SIDE)
70 PAWL (AUTO STOP LEVER) RR
69 LEVER (A-STOP) RR
203 ● KEY (RELEASE-SIDE)
209 ● SPRING
206 ● SUPPORT (LEVER SELECT)
1701 ● PRINT.ASSY
213 ● SCREW
106 131 * LEVER (ANTI-SELECT)
98 DRIVING BELT RN+RR

RR0 PB 403
(PLAY BACK VERSION WITHOUT MOTOR. DAMPER.HEADS AND * MARKED ITEMS)

RR-REC II/0 404
(RECORDING/PLAY BACK VERSION-REC BOTH DIRECTIONS. WITHOUT MOTOR.DAMPER.HEADS AND ● * MARKED ITEMS)

RR-REC I/0 405
(RECORDING/PLAY BACK VERSION-REC ONE DIRECTION . WITHOUT MOTOR.DAMPER.HEADS AND ● * MARKED ITEMS)

EXPLANATIONS FOR VERSIONS:

ITEM (100) TO (124) ON "DECK A"

ITEM (125) TO (149) ON "DECK B"

ITEM (200) TO (215) ONLY USED IN REC.VERSION

● NOT IN RR-REC I/0 AND RR-REC II/0

* DEPENDENT ON VERSION, THEREFORE NOT IN RR 0 PB AND RR-REC I/0 AND RR-REC II/0

67	4822 520 10718	plate bearing
73	4822 402 10038	lever pinch roller left
74	4822 535 92992	tape guide right
75	4822 535 92993	tape guide left
76	4822 528 70646	pinch roller
106	4822 403 70385	lever
111	4822 492 70393	spring head clamping
403	4822 691 10294	RR0 PB assy
404	4822 691 20665	RR REC II /0 assy
405	4822 691 10295	RR REC I /0 assy

Only those parts of which a service code number is stated are service parts.

LUBRICANT (MOBIL SHC 634) Item No. 48

GREASE (SHELL ALVANIA RS) Item No. 49

HANNOSIL-RELEASE AGENT M Item No. 50

FOR SERVICE NO LUBRICATION IS NECESSARY EXCEPT PART WILL BE RENEWED

Tape transport RR-RecII/2

Service
Service
Service

44 993 A11

For details and exploded view see Service Manual of tape transport RN/RR, RDN/RDR (general documentation)

Service Manual

(GB) MAINTENANCE

It is recommended to clean the recorder after approx. 500 hours of operation.

To be cleaned with alcohol or spirit

- Erase head
- Recording/playback head
- Capstan
- Pressure roller

(NL) ONDERHOUD

Aanbevolen wordt het apparaat na ca. 500 bedrijfsuren schoon te maken

Schoonmaken met alcohol of spiritus:

- Wiskop
- Opneem-/weergeefkop
- Toonas
- Drukrol

(F) ENTRETIEN

L'appareil devra être nettoyé après env. 500 heures de marche aux points les plus importants.

Nettoyer les éléments suivants à l'alcool ou à l'alcool à brûler:

- Tête effacement
- Tête enregistrement/reproduction
- Cabestan
- Galet presseur

(D) WARTUNG

Es empfiehlt sich, das Gerät nach ca. 500 Betriebsstunden zu reinigen

Reinigen mit Alkohol oder Spiritus:

- Löschkopf
- Aufnahme/Wiedergabe-Kopf
- Tonachse
- Andruckrolle

(I) MANUTENZIONE

E consigliabile pulire l'apparecchio dopo circa 500 ore di funzionamento ai punti principali.

Pulire con alcool

- Testina di cancellazione
- Testina di registrazione/riproduzione
- Capstan
- Rullo preminastro

DocumentationTechnique Service Dokumentation Documentazione di Servizio Huolte-Ohje Manual de Servicio Manual de Serviçio

"Pour votre sécurité, ces documents doivent être utilisés par des spécialistes agrées, seuls habilités à réparer votre appareil en panne".

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SPECIAL FEATURES

(GB) MODE SELECTION

"Mode Selection" is a feature for reverse –application.One can make a choice how long a cassette has to be played. Start is possible in each direction.

position 1: direction **"play"**
The tape starts with "play".On tape end full auto shut off will be activated.

position 2: direction **"play and reverse"**
The tape starts with **"play"**. On tape end auto stop – mechanism does not shut off but activates the servo mechanism which changes the drive direction. After tape end of the second direction full auto shut off will be activated.
The cassette is moving from begin to end and reverse.

position 3: "endless play"
The tape starts with **"play"**. On tape end auto stop – mechanism does not shut off but activates the servo mechanism which changes the drive direction. After tape end of the new side, direction will be changed again. This is going on till another mode select – position than "3" will be selected or **"stop"**will be depressed.

DIRECTION CHANGE

"Direction change" can be activated during each mode except of "REC"– mode in case of a "REC"– reverse deck. Only a short touch on the button is necessary and the moving direction will be changed. In the same moment the REC/Pb–head will be turned round 180° so that also the recorded tracks on the tape will be chosen in the right way.

(NL) MODE SELECTION

"Mode Selection" is een kenmerk van "reverse"–toepassingen. Men kan zelf bepalen hoe lang een cassette moet worden opgenomen of afgespeeld. Starten is in beide richtingen mogelijk.

Positie 1: richting **"play"** (weergeven).
De band start met weergeven. De volledig automatische uitschakeling bij het bereiken van het einde van de band wordt geactiveerd.

Positie 2: richting **"play and reverse"**.
De band start met **"weergeven"**. Het autostop–mechanisme schakelt de recorder niet uit, wanneer het einde van de band is bereikt maar activeert het servomechanisme dat de aandrijfrichting omkeert. Bij het bereiken van het einde van de band in positie 2 wordt de volledig automatische uitschakeling geactiveerd.
De cassette wordt van het begin naar het einde gespoeld en omgekeerd.

Positie 3: "endless play"
De band start met **"weergeven"**. Het autostop–mechanisme schakelt de recorder niet uit wanneer het einde van de band is bereikt maar activeert het servo–mechanisme dat de aandrijfrichting omkeert. Nadat opnieuw het einde van de band is bereikt, wordt de richting weer omgekeerd. Dit gaat zo door totdat een andere "mode select"–positie dan "3" wordt gekozen of de toets **"Stop"** wordt ingedrukt.

DIRECTION CHANGE

"Direction change" (veranderen van bandtransportrichting), kan in iedere stand worden geactiveerd behalve in de stand "REC" (opnemen) van een "REC"–reverse deck.
Met slechts een lichte druk op de toets kan de bandtransportrichting worden omgekeerd. Op hetzelfde moment wordt de opname/weergavekop 180° gedraaid zodat de op de band opgenomen sporen op de juiste wijze worden gekozen.

(F) SELECTION DU MODE

La "sélection du mode" est un dispositif qui s'applique dans le cas d'inversion de défilement. Vous pouvez choisir le temps de lecture d'une cassette. Le départ est possible dans les deux sens.

position 1 : sens "**lecture**" (play)
La bande démarre au moyen de la touche "play". A l'arrivée en fin de bande, l'arrêt total automatique sera activé.

position 2 : sens "**lecture et inversion**" (play and reverse)
La bande démarre au moyen de la touche "play". A l'arrivée en fin de bande, le mécanisme d'arrêt automatique ne stoppe pas mais active le servomécanisme qui change le sens d'entraînement. Après l'arrivée en fin de bande dans le second sens, l'arrêt total automatique sera activé.
La cassette va du début à la fin et inverse.

position 3 : "**lecture sans fin**" (endless play)
La bande démarre au moyen de la touche "play". A l'arrivée en fin de bande, le mécanisme d'arrêt automatique ne stoppe pas mais active le servomécanisme qui change le sens d'entraînement. Après l'arrivée en fin de bande sur le nouveau côté, le sens changera à nouveau. Ceci se répètera jusqu'à la sélection d'un mode autre que la position 3, ou si "**stop**" est enfoncé.

CHANGEMENT DE SENS

Le "changement de sens" peut être activé dans chaque mode à l'exception du mode enregistrement ("REC") dans le cas d'une copie avec appareil à inversion de défilement. Il suffit d'une brève pression sur la touche pour que le sens de défilement change. Dans le même temps, la tête de lecture–enregistrement pivote à 180° de façon que les pistes enregistrées sur la bande soient aussi choisies comme il convient.

(D) MODE SELECTION

"Mode Selection" ist eine Funktion bei Reverse – Laufwerken. Mit dieser Funktion kann die Abspieldauer der Kassette vorgewählt werden. Es kann sowohl mit der linken als auch mit der rechten Transportrichtung begonnen werden.

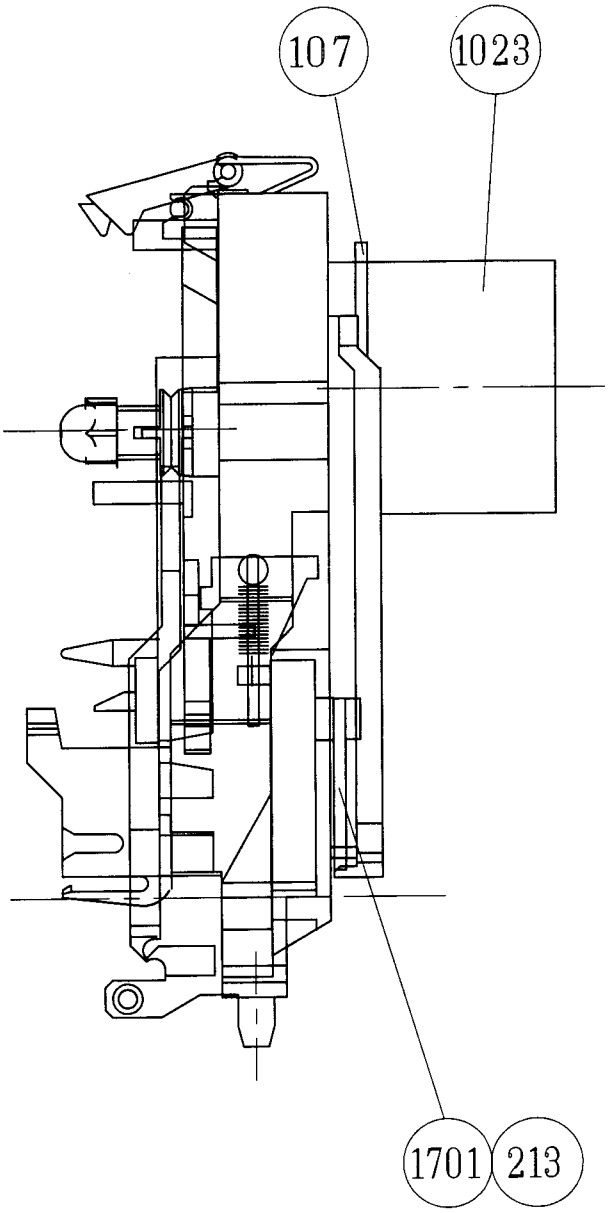
Position 1: "play"
Die Kassette wird mit **"play"** gestartet. Am Bandende schaltet die Auto stop – Funktion ab.

Position 2: "play and reverse"
Die Kassette wird mit **"play"** gestartet. Am Bandende schaltet der Auto stop – Mechanismus nicht ab, sondern betätigt den Servo – Mechanismus und dieser ändert die Transportrichtung des Bandes. Am Bandende der 2. Kassettenseite schaltet die Auto stop – Funktion ab. Die Kassette wird von der Startposition bis zum Ende dieser Seite und auf der 2. Seite wieder zurück abgespielt.

Position 3: "endless play"
Die Kassette wird mit **"play"** gestartet. Am Bandende schaltet der Auto stop – Mechanismus nicht ab, sondern betätigt den Servo – Mechanismus und dieser ändert die Transportrichtung des Bandes.
Am Bandende der 2. Seite wird die Transportrichtung wieder geändert.
Dieser Vorgang wiederholt sich solange, bis eine andere Select–Position als "3" gewählt oder die **"stop"**– Taste gedrückt wird.

DIRECTION CHANGE

"Direction change" kann während jeder Funktion aktiviert werden, außer während "REC" bei "REC"– Reverse Laufwerken.
Es genügt ein kurzer Druck auf die Taste und die Transportrichtung des Bandes wird umgedreht. Im gleichen Moment wird der Aufn./Wg – Kopf um 180° gedreht, sodaß auch die richtigen Spuren vom Band abgespielt werden.



(I) SELEZIONE DEL MODO

I registratori previsti per l'inversione del senso di trasporto del nastro permettono la selezione del modo e la determinazione della durata di registrazione o di riproduzione. L'avvio è possibile in ambedue i sensi.

Posizione 1: senso **"play"** (riproduzione)
La cassetta viene riprodotta. Alla fine del nastro nella cassetta interviene l'arresto automatico.

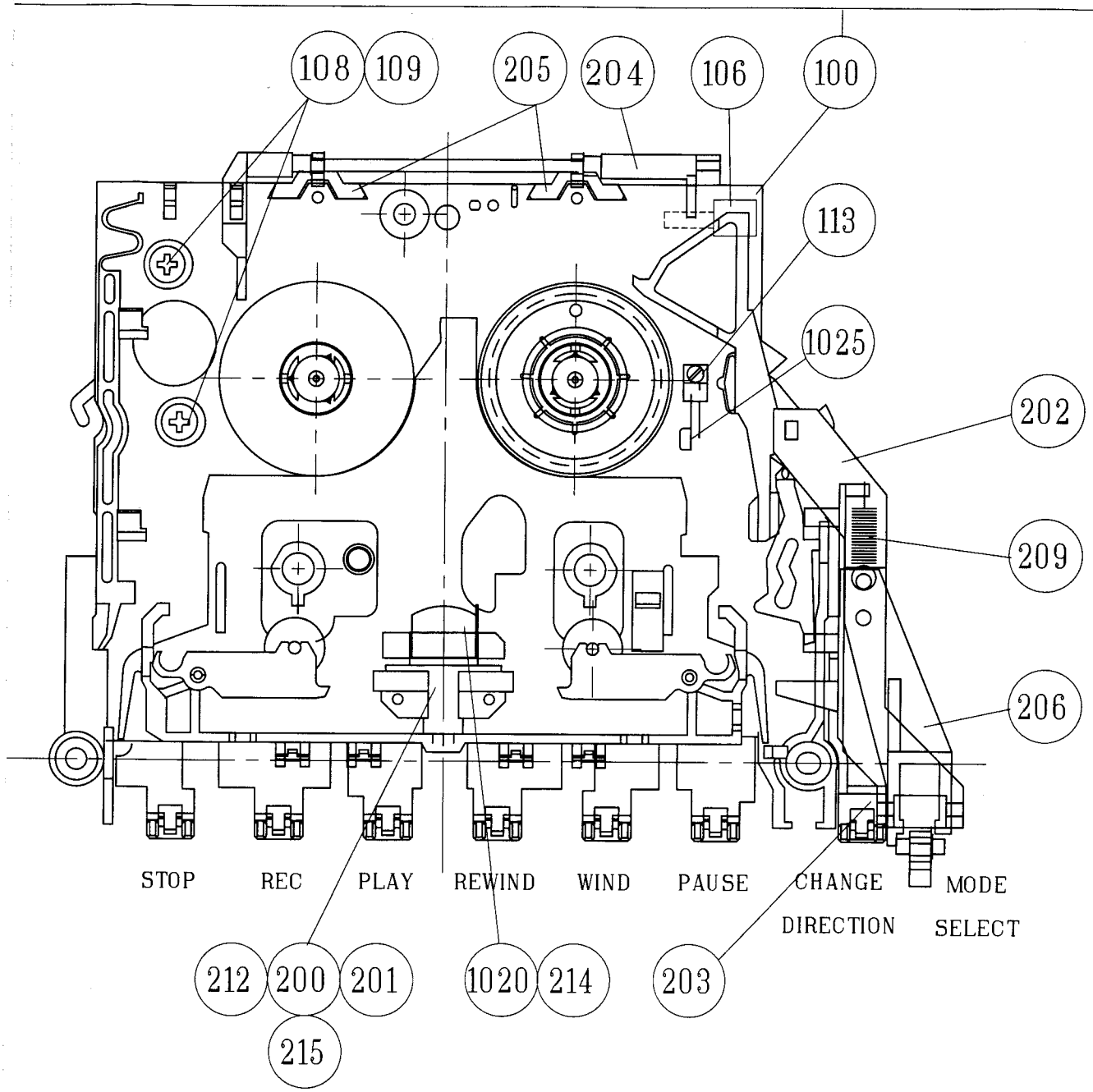
Posizione 2: senso **"play and reverse"** (riproduzione ed inversione)
La cassetta viene **riprodotta**. Alla fine del nastro nella cassetta, non viene attivato il meccanismo di arresto automatico ma il servomeccanismo che provvede all'inversione del senso di trasporto del nastro. Alla fine del nastro nella cassetta nella posizione 2, interviene l'arresto automatico. Il nastro viene avvolto fino all'inizio ed invertito.

Posizione 3: "endless play" (riproduzione continua)
La cassetta viene **riprodotta**. Alla fine del nastro nella cassetta, non viene attivato il meccanismo di arresto automatico ma il servomeccanismo che provvede all'inversione del senso di trasporto del nastro. Quando è stata raggiunta nuovamente la fine del nastro nella cassetta viene invertito di nuovo il senso di trasporto del nastro. Per terminare la riproduzione continua, selezionare un altro modo o premere il tasto **"Stop"**.

MODIFICA DEL SENSO DI TRASPORTO DEL NASTRO

La modifica del senso di trasporto del nastro è possibile in qualsiasi modo ad eccezione nel modo di registrazione con un registratore che permette tale inversione.
E' sufficiente toccare il tasto per invertire il senso di trasporto del nastro. La testina di registrazione/riproduzione viene girata di 180° per cui le tracce registrate sul nastro vengono selezionate nella maniera corretta.

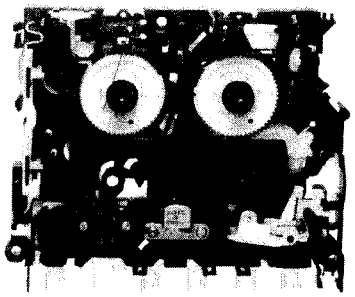
TRIPPED VERSION WITHOUT NOTED ITEMS IS CALLED AND HANDLED AS RR-REC II/O



100	4822 691 20665	RR-RECII/0 assy
106	4822 403 70385	lever
107	4822 529 10254	damper, motor
108	4822 502 11866	screw, motor
202	4822 403 70386	lever, mode select
204	4822 403 70387	lever, recording protection
205	4822 520 20725	bearing, recording protection
209	4822 492 33272	spring
212	4822 520 40134	ball, bearing head
1020	4822 249 10434	head combi, rec./pb - erase
1023	4822 361 21446	motor
1025	4822 278 90624	switch,indication direction

Only those parts of which a service code number is stated are service parts

Service
Service
Service



45 190 A11

For details and exploded view see Service Manual
of tape transport RN/RR, RDN/RDR
(general documentation) 4085

Service Manual

(GB) MAINTENANCE

It is recommended to clean the recorder after approx. 500 hours of operation.

To be cleaned with alcohol or spirit

- Erase head
- Recording/playback head
- Capstan
- Pressure roller

(NL) ONDERHOUD

Aanbevolen wordt het apparaat na ca. 500 bedrijfsuren schoon te maken

Schoonmaken met alcohol of spiritus:

- Wiskop
- Opneem-/weergeefkop
- Toonas
- Drukrol

(F) ENTRETIEN

L'appareil devra être nettoyé après env. 500 heures de marche aux points les plus importants.

Nettoyer les éléments suivants à l'alcool ou à l'alcool à brûler:

- Tête effacement
- Tête enregistrement/reproduction
- Cabestan
- Galet presseur

(D) WARTUNG

Es empfiehlt sich, das Gerät nach ca. 500 Betriebsstunden zu reinigen

Reinigen mit Alkohol oder Spiritus:

- Löschkopf
- Aufnahme/Wiedergabe-Kopf
- Tonachse
- Andruckrolle

(I) MANUTENZIONE

E consigliabile pulire l'apparecchio dopo circa 500 ore di funzionamento ai punti principali.

Pulire con alcool

- Testina di cancellazione
- Testina di registrazione/riproduzione
- Capstan
- Rullo preminastro

DocumentationTechnique Service Dokumentation Documentazione di Servizio Huolte-Ohje Manual de Servicio Manual de Serviçio

"Pour votre sécurité, ces documents doivent être utilisés par des spécialistes agrées, seuls habilités à réparer votre appareil en panne".

Subject to modification
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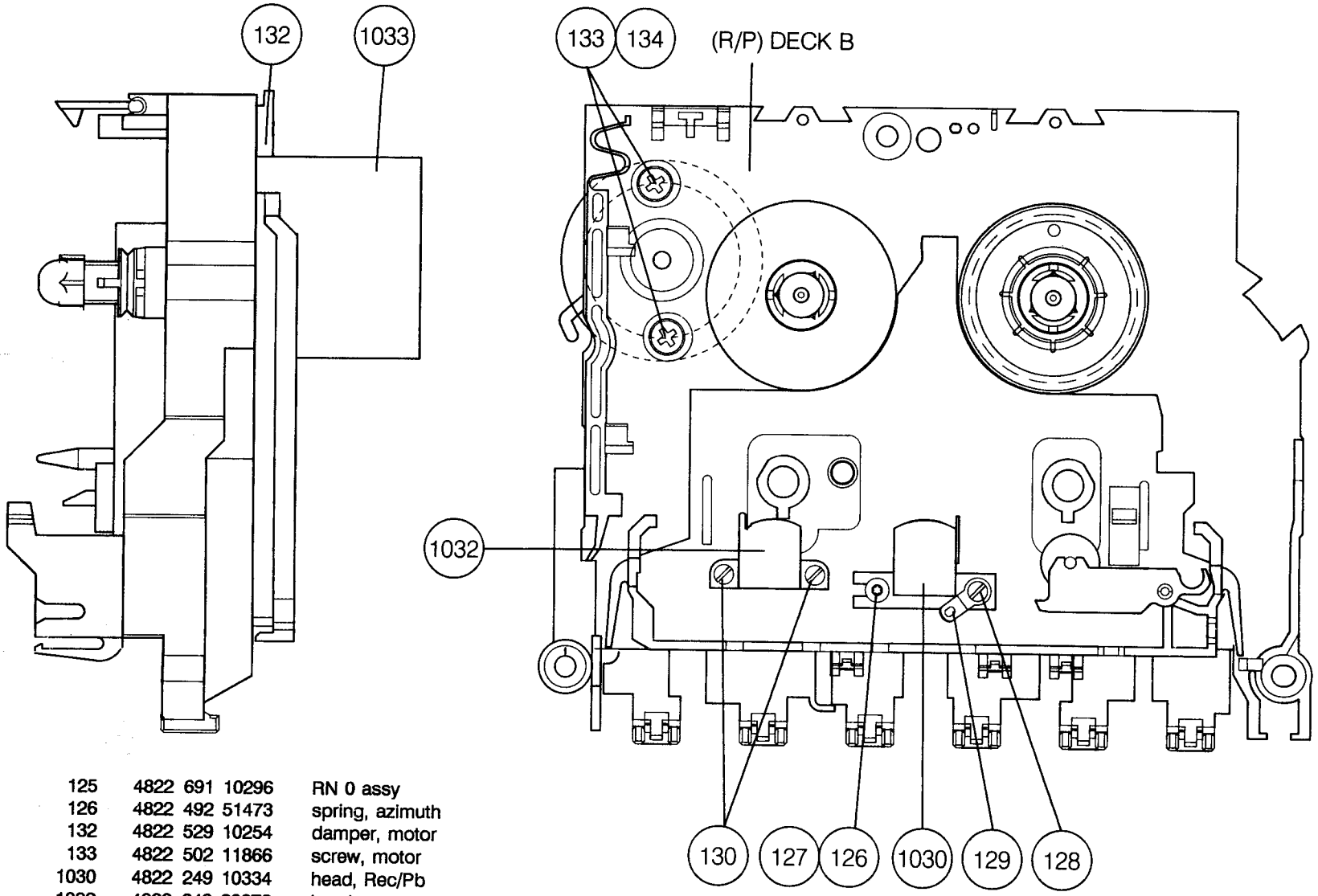
CS 38 155

STRIPPED VERSION WITHOUT NOTED ITEMS IS CALLED AND HANDLED AS RN0 4822 691 10296



125	4822 691 10296	RN 0 assy
126	4822 492 51473	spring, azimuth
132	4822 529 10254	damper, motor
133	4822 502 11866	screw, motor
1030	4822 249 10334	head, Rec/Pb
1032	4822 249 20072	head,erase
1033	4822 361 21425	motor

Only those parts of which a service code number is stated are service parts

MDA.2903
T28/048